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Featuring— **The Farm Mechanics Program**

The Agricultural Education Magazine

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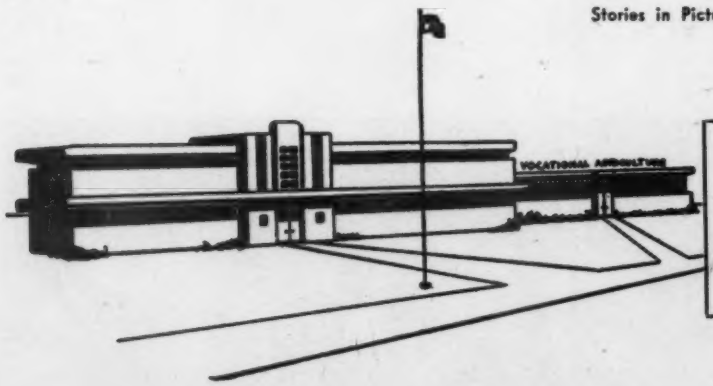

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Editorials

The Need Is Great

T. G. WALTERS, Supervisor, Georgia

No one likely will challenge the statement that the need for mechanical skills and managerial abilities in this day of modern farming requires more schooling for those who have chosen farming as their way of life.

As an example of this need, according to a reliable source the average value in 1950 of farms producing at least $2,500 worth of products was $26,500. It requires more than the three R's for a farmer to manage successfully a business of this size.

Developing these everyday skills and abilities of working people is the objective and the task of vocational agriculture.

The signifiance of education for farm people is obvious in view of the decreasing role of hand labor in agriculture and the increasing need for mechanical skills and managerial ability.

Amazing changes have taken place in our generation. We live not only in a unique time in history but also in a unique spot on the globe. If we review the progress man has made in scientific and technological changes, starting with the story of creation in the book of Genesis and continuing until 1854—100 years ago, we will find that practically no changes were made. The farmer in 1854 farmed with practically the same information as primitive man. Most of the changes have occurred since the turn of the present century. And most of us in the field of vocational education have had a part in this amazing scientific revolution.

Where does the farmer find himself in this scientific age? Many of our farmers grew up at a time when a grammar school training was all that was considered necessary in farming. That day has passed. Today, a farmer needs to be trained for his job just as does a doctor or lawyer.

A good picture of the need among Georgians for vocational training, to illustrate with a particular state, may be gained by studying the history of the class which graduated from the state's high schools in 1954, looking at it periodically from the time it started out in the first grade in 1943.

Year	*Grade*	*No. of Students*
1943	First	145,675
1946	Fourth	79,433
1949	Seventh	59,991
1952	Tenth	37,338
1954	Graduated	22,880*

* Only about 5,500 of these have entered Georgia colleges.

These figures show that only 16 per cent of those who entered the first grade in 1943 actually continued in school until they were graduated in 1954. More than 108,000 or about 64 per cent of the original class didn't get far enough in school to be benefited by vocational education.

The above case clearly illustrates that vocational education has a real challenge to provide training for the masses who do not have the opportunity to go to

(Continued on page 149)

Keeping Pace With Mechanized Farming

R. W. CLINE, Teacher Education, University of Arizona

During a recent trip through the cotton section I stopped to watch the oblique line of picking machines roar down the long rows and fade away in the distance. With this huge machine each man was doing the work of approximately seventy hand-pickers.

This scene is only one of the many changes on American farms resulting from large-scale mechanization. The extensive use of power equipment in farming is a rather recent development which is increasing rapidly as part of an overall trend in the application of research to problems of production. According to one authority technological progress in agriculture during the past decade is three times that of industry. Although the expenditure of funds for research in agriculture has not kept pace with that in other kinds of industry, we may expect substantial gains in future years. Agriculture will also benefit directly and indirectly from some types of research conducted by business and industry. When the full impact is felt from the vast programs of research and technological development now in progress, there will be even greater improvement in farm equipment and practices. These trends have important implications for programs of instruction in farm mechanics. It is appropriate here to mention only a few items with the hope that they may stimulate further analysis of this important phase of vocational agriculture.

Since the quality of instruction is determined by the teacher, the selection and preparation of instructors is a matter of first importance. Due to an increasing number of multiple teacher departments some specialization is now possible in teacher responsibilities with corresponding selection and preparation of personnel. In general there appear to be two major needs in the pre-service training program; first, the expansion of learning experiences adequately to cover the five basic areas of content; and second, the teaching of abilities on the doing level with emphasis on the mechanical jobs most commonly performed by farmers. The in-service training program should emphasize cooperative courses, clinics, and workshops between the training agencies and the equipment industry, with extensive use of specialists as consultants and instructors. Such working relationships will aid teachers in keeping their facilities and practices abreast of new developments.

In determining course content, teaching procedures and shop facilities, major consideration should be given to the efficient use of the individual's time as a student in school and a producer on the job. Unless the jobs and practices taught in the shop are feasible from the standpoint of time requirements and other economic considerations they may have little value in the present highly competitive system of farming. While vocational agriculture is increasing in scope, class time is on the decrease. This emphasizes the need for completely equipped shops with adequate power tools, improved shop organization, visual aids and the direct demonstration-participation approach to speed

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Here is a point of view for your consideration

Let's re-evaluate farm mechanics instruction

J. O. TRESSLER, Vo-Ag Instructor, Bloomville, Ohio

J. O. Tressler

THE big swing in recent years has been toward more farm mechanics instruction in our vocational agriculture departments. Has it been desirable? Have we been justified in giving so much emphasis to farm mechanics?

When I think of proficiency in the field of farm mechanics, I am reminded of a farmer in my boyhood neighborhood. He was "the handy man" for miles around. There was no job that he couldn't do. He responded to calls promptly, but lacked managerial ability in getting even a fair wage for his work. His farm was a fine example of poor management.

On the other hand my father could hardly build a decent milk stool. Yet I would call him a successful farmer of his day. He was the first to use lime in the country, the first to grow alfalfa successfully, and was always figuring how he could spend a dollar and get back two or three.

When mother's poultry records showed a relatively higher net profit than his dairy herd, he was willing to enlarge the laying flock. From then on it became a major enterprise, even though father had always disliked chickens.

Why the Swing to Farm Mechanics

Why have we made the big swing to more farm mechanics instruction? Of course, there now is a greater need for skills and abilities in farm shop practice and in operating and maintaining the farming equipment.

But just how much class time is needed in teaching these skills and abilities? Twenty-five years ago we taught valve grinding. How many farm shops today are equipped with tools to do this job and many others as they should be done? Most any boy who will follow instructions in his *operating manual* can learn to do these jobs which should be done on the farm machinery and will do them well with very little instruction.

Are we spending so much time in overhauling farm machinery and in gadget-making that we fail to include many other problems in the farm engineering field? Here we ought to include the use of the transit level in drainage, building terraces, and making foundation forms for farm buildings; calculating acreages, bushels of corn in the crib, or tons of hay in the mow; crop drying and irrigation problems; choosing and ordering lumber, roofing, and supplies; mixing and finishing concrete; and making detailed sketches for new and approved farm buildings.

Are we really training a bunch of farm tinkerers who would rather spend their time in the shop making say a dollar an hour, when they might be making $10 per hour or more by worming the sheep or analyzing their farm account records?

It is easy to drift into an ever-expanding farm mechanics program. It is easy to conform to popular trends. The farm mechanics work is very alluring to most boys. The parents can see with their very eyes that something is being accomplished, whereas learning good farm management principles fails to attract attention or to show immediate results. Likewise, the tangible effects of farm mechanics instruction even appeal to legislators and congressmen.

Are Large Farm Shops in Schools Used?

In some communities, large farm shop buildings have been built. Are they being used? In Ohio, we have difficulty in getting enough farm machinery into the school for demonstration purposes. More often we take the class out to the farm. Young farmers and adults prefer to do their repair work at home. Vo-Ag instructors have been known to keep farm machinery in their shops for weeks at a time, so that perchance when their supervisor called, they would not be caught short.

As I see it (and I know many will disagree), the most profitable phase of farm mechanics instruction could just as well be taught under the caption of farm management. Will a new machine pay? What will be the annual cost? How much will it cost per acre or per hour of use? Should I buy a good used implement instead? Or custom-hire the work done? Or how can I change the farming program to make greater use of certain expensive types of farm implements?

I believe that we need to teach twice as much farm management and marketing and half as much farm mechanics. However, it will be more difficult to hold the interest of the pupils, but the time spent may be worth far more to the students. This policy may test our teaching methods and call for novel techniques. We teachers may need to know more about actual farm management. The teacher education departments may need some practice farms where their students may actually run a farm for a year.

In conclusion may I point out some actual farm problems where we as vocational teachers have failed and are still failing?

A young farmer works his eight-hour shift in the factory. In addition he farms his forty-acre farm. He has enough machinery to farm three or four times as much land. If farm account records were kept, he would undoubtedly find that his hours spent on the farm actually cost him money out of the pocket.

A production credit manager recently told me this story. His office has been "carrying" a large farm operator for a number of years. The manager knew more about this farmer's business than the farmer himself. The farmer argued that since his debt was lower this year than it was last year, he was making progress. However, one factor the farmer failed to reckon with was depreciation. The farmer's net worth was $4,300 less this year than it was last year, according to the production credit manager's calculations.

Yes, let us calculate the cost. The big need is that we vocational agriculture teachers awaken farmers and would-be farmers to the fact that sound business principles are just as important in farming as in any other line of business. □

Keeping Pace - - -

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up the learning process. The practice of purchasing or leasing farm machinery for class use enables the instructor to teach on the doing level and to set good standards of workmanship and habits of safety.

Along with improved facilities comes a responsibility to make greater use of this expensive part of the school plant. A logical development in this direction is the expansion of instructional programs for young and adult farmers. The improved facilities may also serve the needs of vocational agriculture students who will enter jobs related to farming. From the classrooms and shops of able teachers will come many leaders for this age of mechanized farming. Herein lies a challenge for the present, an inspiration for the future. □

The Cover Picture

Improvements in farm machinery have brought about considerable change in rice farming in Arkansas. The scene pictured on the cover page shows what is known as "floating" rice land. After the land is broken, it is worked down into a smooth, well-pulverized seed bed by the use of disks, harrows and floats. "Floating" is a process of smoothing the land—removing high places and filling low spots. It is not used to change the grade of the slope. The purpose of "floating" is to prepare the ground for flooding. Rice usually is flooded for approximately three months of the growing season. With today's machinery one man can float around 35 acres per ten hour day, going over the area twice with the float.

Physical and social growth cannot take the place of mind training.

A warning worth heeding - - -

Safety in the farm mechanics program

E. C. CUNNINGHAM, Vo-Ag Instructor, Washburn, Maine

FARM Mechanics can be dangerous if proper safety precautions are not followed.

Since it is an accepted fact that agriculture is becoming more highly mechanized each year and that farming is one of the most hazardous occupations, why not spend more time and effort in the development of more and better safety measures in connection with the various activities of our farm mechanics program? Should not we spend more time and effort in impressing upon our agricultural boys the need for greater application of safety measures in the shop, home, and field? By such accomplishment the life they save may be their own.

Identify Safety Practices

Let us begin this important task by working out with our classes a list of desirable or undesirable practices relative to one's own safety, as well as those of fellow workers, in connection with each of our farm mechanics enterprises and then take steps to get them practiced in our daily routine at school and at home. As so often stated, it is just as easy for one to learn the correct method of doing a job as the incorrect. Therefore it is just as easy and certainly a lot wiser to do various jobs or skills the safe way. In other words, let us teach each day, so that safety measures become a rule rather than the exception. You may say, "I have discussed the various practices with my boys, and what more is there for me to do?" Perhaps the answer is to insist that they put them to use at all times. Unless we take advantage of every opportunity to get safe, practical methods followed daily so as to form correct habits, then we are missing our opportunity to establish desirable safety practices.

Demonstrate Safety

We as teachers of agriculture must be always alert to the using of proper safety practices in our shop demonstrations and never have occasion to tell the boys to do as you suggest but not as you do. Mistakes are almost certain to be copied, therefore be sure that you set a good example and demand that it be practiced. For instance, one may find himself using the bench grinder to sharpen a wood chisel or plane iron without using safety goggles; or placing his fingers too near to the circular splitting saw, or striking an electric arc before the helmet has been put in place. Then in case a pupil should do likewise and get a splinter of steel in the eye, or lose a finger, or have so-called hot sand in the eyes, what reasonable explanation can the teacher make to the boy's parents? Let us hope that such explanation will not be necessary.

Thus it becomes our responsibility, fellow teachers, to demonstrate sound safety measures, practice safety measures, and demand that all our boys practice the safety measures which they have been taught at all times.

May I especially urge beginning teachers to spare no effort in this very important responsibility. Yet, it is just as important to the older teacher who has perhaps been very lucky to date and had no serious mishaps in relation to his farm mechanics program. I am reminded of an actual case history, of which I have been informed, where a teacher who had taught thirty years in a community was proven negligent for an accident which occured in the school agricultural shop and cost the teacher his job, home, automobile and savings account, plus the loss of respect from many members of the community.

I am certain that none of us want such an experience to come to us. Therefore, it is essential that we do everything within our power to establish safety practices in the minds of our boys and develop habits in their daily routine of accomplishment in their farm mechanics program while both at school and on the farm. I am positive our efforts will be highly rewarded. □

The Need is Great

(Continued from page 147)

college and especially for those who have dropped out of school before completing high school. And many of our farm people did not have the opportunity to stay in school beyond the grammar school level. Someone has said that "vocational education is the working man's college."

In order for vocational agricultural teachers to do a better job in giving instruction to out-of-school groups in farm mechanics, there are several criteria which must be met. We must realize that farmers today have a better opportunity to secure information than ever before. Many farmers do not want information on varieties and fertilization but are interested in new information such as insecticides, government programs affecting their farm operations, new feeding practices with some of the latest developments of hormones in feeding beef cattle.

Farmers have, almost over-night, changed over to a "machine age" in agriculture. It has been estimated that 95% of the productive work done in America is done by machine. Truly this is a "machine age."

Vocational education must adjust its program to meet the challenge before us. We must give our farmers the kind of training they want. Agriculture has changed so rapidly in the last 15 or 20 years that it has been almost necessary to retrain all teachers of vocational agriculture.

In Georgia we are attempting to give in-service training to our teachers and to see that they have the technical "know-how" to conduct adult classes in farm mechanics. For the past two summers, we have had a staff of people from the College of Agriculture, consisting of agricultural engineers and teacher trainers, working with teachers in the field by conducting workshops in rural electrification and tractor maintenance. We have reached practically all of our teachers in these two clinics which were set up on a "learn by doing" basis. In the electrical courses panels were constructed and each teacher was given an opportunity to do wiring. Before the end of the two-day course, the instructor checked the work of each teacher. The same was true in the tractor maintenance courses. Tractors were brought into the central school, and all teachers had an opportunity to put into practice what the teacher taught. We are confident that we have made progress in our adult program in these two areas.

In some of the other areas farmers want help in building fences, farm electrification, farm water supply, and irrigation. I do not mean to imply that we must move out of the area of farm planning which would include the proper use of our land, fertilization, varieties, insecticides, etc. These are all important.

We have a big job to do, and I go back to one of my original statements in saying—our teachers must have an opportunity to be kept up-to-date on what's new in agriculture as well as know how to put into practice many of the skills which are essential in the farmers' profession. It brings to my mind a statement made by a Negro "master teacher" when he said, "You can't teach what you don't know. You can't lead where you won't go." □

Herbert Hunter, honorary State Farmer and adult class member, looks on as two members of the University High (Morgantown, W. Va.) FFA Chapter complete painting the warning sign on a gasoline storage tank. This is a part of the Chapter's farm safety campaign. Farm safety is one of the important items in the year's program of work in the Chapter.

Managerial abilities are important in teaching farm mechanics

J. R. HAMILTON, Teacher Education, Mississippi State College

J. R. Hamilton

A recent study was conducted in Michigan[1] to determine the relative importance of 110 farm-shop abilities and seventy farm-structure abilities in teaching vocational agriculture. The study was intended to provide a current basis for planning a teacher-preparation curriculum. Of the total of 180 farm-mechanics abilities tested, approximately thirty-five were classified as managerial. This investigation revealed that the managerial abilities, as a group, were apparently more important to the teacher of vocational agriculture than were the manipulative abilities. The statistical evidence was conclusive on this point.

Four groups of persons who were closely associated with vocational education in agriculture were selected to serve as a jury representing expert opinion in the state of Michigan. These respondents, by groups, were as follows:

1. Teacher educators, including college staff members, supervising teachers, and state consultants
2. Agricultural engineers from the college staff
3. Teachers of vocational agriculture experienced in teaching farm mechanics
4. Farmers who were members of advisory councils in vocational agriculture

Scores were computed for each of 180 abilities in the two areas of farm mechanics based on the response given.

Opinions Agreed

Group responses, as revealed by the numerical scores of the 180 abilities, showed a high degree of similarity as to the importance of these abilities in teaching. As a matter of fact, over 100 coefficients of correlation computed by taking all possible combinations of respondent groups failed to show any areas of serious disagreement among the groups in either farm-shop or farm-structures abilities. Agricultural educators tended to score all items higher than did others while farmers tended to give the lowest scores. The units in the study representing the greatest lack of agreement among the respondents, for some strange reason, were the units having the lowest composite scores. For example, rope work, sheet metal, and forge work—the units falling at the bottom of the list in importance—showed the least agreement among respondents in regard to the importance of individual abilities comprising these three units.

There was almost complete unanimity among the respondents in placing the managerial-type of abilities at the top of the list in both areas of the study. These general abilities were grouped under headings "general principles" in both cases. They contained such items as (1) ability to select and purchase shop equipment, (2) ability to plan school farm shops for effective instruction, (3) ability to select the most desirable shop work for instructional purposes, (4) ability to plan farm buildings to meet functional requirements, (5) ability to apply principles of economics in planning farm buildings, (6) ability to plan and lay out a desirable farmstead, and the like.

The range of the numerical scores of 110 farm-shop abilities was from 420 points for the ability, "to weld steel in the forge," to 1030 points for the ability, "to identify various arc welding errors." The possible range in scores in the farm-shop section was from 0 to 1060 points. When the 110 abilities were arranged in the order of highest to lowest, and when cutting points were established to divide the scores into quintile units, it was shown that eighteen of the highest twenty-one items were of the managerial type. Similar results were obtained in the farm-structures phase. As a matter of fact, every managerial ability in both areas of the study fell into the upper 40 per cent of the scores in the two distributions while a majority of them fell into the upper twenty per cent.

Response of Teachers

Eighty Michigan teachers of vocational agriculture who had taught farm mechanics rated the adequacy of college training received for developing the 180 abilities. The results of this phase of the study indicated that the managerial abilities have been generally underemphasized when their importance is considered. While these items were rated near the top of the list in importance, they were rated only moderate on the adequacy-of-training scale.

When the analysis of the importance and the adequacy of training were summarized and arrayed by units, it was shown that the use and care of tools, general principles, arc welding, cold metal, and pipe fitting were rated most important in the order as listed; while forge work, rope work, and sheet metal work received the lowest unit scores in importance and the oxy-acetylene abilities were scored about moderate in importance. Adequacy-of-training scores were highest in rope work and sheet-metal abilities and were lowest in the units of forge work, pipe fitting, oxy-acetylene welding and general principles.

The abilities having the highest scores in farm structures were included in the units of use and care of tools, concrete and masonry, and general principles, in that order. The largest discrepancy shown in the farm-structures phase of the study was in the unit of "farm building repair." This unit was ranked fourth in importance but was scored lowest in adequacy of training.

Conclusions Reached

On the basis of correlation coefficients between the importance and training scales it was concluded that teachers' training was not fully adequate to develop the managerial abilities in farm mechanics. This was more fully shown by the fact that almost every unit contained one or more managerial abilities; these items invariably received high scores. Teachers expressed a need for additional training in developing the managerial abilities; in addition, they listed needs for more training in hand tool processes, tool fitting, activities in repairing buildings, and opportunity to construct more projects of the high school vocational agriculture type.

As a means of improving on the development of some of the managerial type of abilities, teachers suggested that more problems and activities be provided in planning school farm shops, selecting shop equipment, and storing equipment; they advocated the greater use of field trips in learning how to plan shops and other farm structures.

A general conclusion reached in this study was that new methods and techniques should be devised for developing in the prospective teacher of vocational agriculture those managerial-type of abilities, some of which apparently represent the most difficult phase of teacher preparation in farm mechanics.

Apparently, we feel more confident that we can develop nail-driving or hand-sawing ability than we do in developing some of these more comprehensive abilities that involve judgment, resourcefulness, and critical thinking.

Nothing in the study tended to minimize the importance of manipulative abilities *per se*; the managerial abilities, however, were shown to represent an essential requirement of teachers who teach farm mechanics.

A program that would develop the managerial abilities in the prospective teacher of vocational agriculture would have to be truly vocational; it would have to involve the trainee in real-life situations—situations similar to those in the communities where the vocational agriculture teacher teaches farm mechanics. □

[1] James Roland Hamilton, "The Preparation of Michigan Teachers of Vocational Agriculture in Two Areas of Farm Mechanics," (Unpublished Doctor's thesis, Michigan State University, East Lansing, 1955). 265 pp.

Featured in February - - -

"Professional Preparation and Improvement"

The height of one's attainments depends largely upon how long he can continue to grow.

This will help you in promoting home farm shops

Home farm shops in Pennsylvania

R. N. JONES, Agr. Engr. Instructor, Pennsylvania State University

R. N. Jones

THE establishment and use of adequate home farm shops has been accepted as a primary objective of the farm mechanics program in vocational agriculture. The rapid advance of the mechanical age in farming has resulted in the older shops and many of the newer ones becoming obsolete due to the increased sizes of work areas needed to accommodate larger modern machinery. Some farms have never established adequate home farm shop facilities.

Farmers and teachers of vocational agriculture have repeatedly requested information concerning adequate standards for home farm shop facilities. Teachers have also expressed a desire for guidance in procedures to follow in promoting the establishment of home farm shops. In order to secure the information needed to answer these requests from farmers and teachers and to progress toward the objective of having adequate shops on Pennsylvania farms, a study[1] was undertaken to determine: (1) the methods teachers of vocational agriculture have found to be most effective in promoting the establishment of home farm shops; (2) the reasons why some farmers have established shops; (3) the factors which limit the establishment of home farm shops; (4) the types of shops, power tools, supplies, and storage facilities farmers and teachers of vocational agriculture have found desirable for various types of farms; and (5) the types of shops and storage facilities which should be recommended to the farmers of Pennsylvania.

Frequency of Home Shops

A total enrollment of 7,202 students was reported by the teachers of the 143 departments of vocational agriculture which were included in the study. Of the total, 2,391 (33.2 per cent) lived on farms with shops. Shops were found on the home farms of 48.3 per cent of the Veteran IOF students, 44.1 per cent of the Young Farmer students, 37.0 per cent of the Adult Farmer students, and 30.9 per cent of the All-Day students.

Mean value ratings ranging from 2.35 to 3.43 on a five point scale with 4.0 being rated as excellent were given to all of the listed methods, activities, aids, and techniques used by teachers of vocational agriculture in promoting the establishment of home farm shops. The relatively high and closely grouped value ratings indicated that no set formula may be designed which would result in the establishment of shops. Rather, the wise use of a variety of methods, activities, aids and techniques was indicated.

Factors in Establishment

Data concerning 251 Pennsylvania farms, farm shops, and farm operators indicated the following factors were related to the establishment of home farm shops: (1) farm size; (2) size of machinery inventory; (3) youth of farm operator; (4) tenure of operator on present farm; (5) convenience in doing farm repair and construction work; and (6) economy in making repairs. Convenience in doing farm repair and construction work was apparently more important as a factor influencing the establishment of home farm shops than was economy in making repairs since the former was listed by a greater number of farm operators than was the latter.

Other reasons for establishing home farm shops as listed by farm operators included (1) locate tools when needed, (2) speed up repair work, (3) store machinery, (4) profitable hobby, and (5) do custom work.

The receipt of conflicting information indicated the need for a further study

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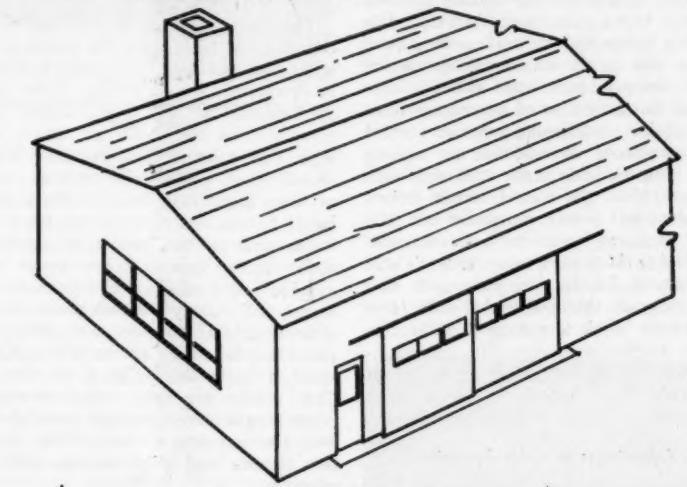
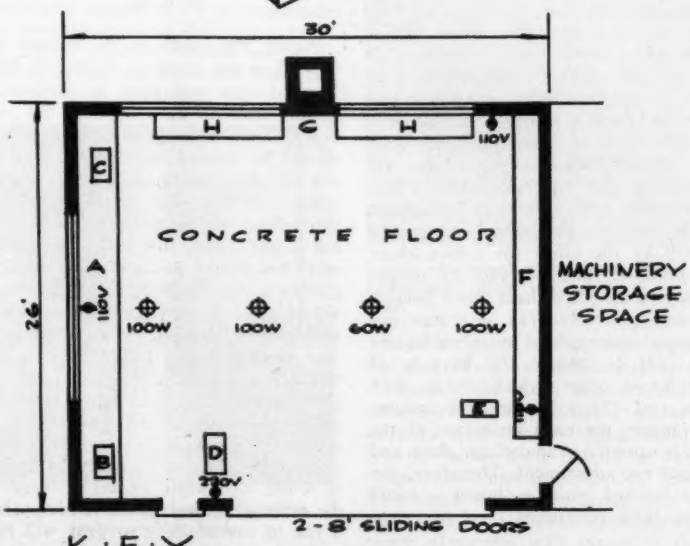
A RECOMMENDED HOME FARM SHOP FOR PENNSYLVANIA FARM





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D. WELDER
E. AIR COMPRESSOR
F. LUMBER AND METAL STORAGE RACKS
G. STOVE
H. STORAGE SHELVES, BINS, OR CABINETS

[1] Jones, R. N., "Home Farm Shops in Pennsylvania," Ph.D. Dissertation, The Pennsylvania State University, 1954.

Let color work for you

It has particular advantages in the farm shop

GORDON H. BUSBOOM, Vo-Ag Instructor, Beatrice, Nebraska

Gordon H. Busboom

YES, the proper selection of colors for the walls, ceiling, floors, and equipment in your school farm mechanics shop can aid you materially. Take a look around your shop—are the walls bare of paint or painted in the traditional ivory color or are they painted in modern up-to-date eye-rest colors? Using paint to an advantage in a color dynamics system is nothing new. Yet a visit to the vocational agriculture farm shops in your state will probably reveal that only a small percentage have had a color conditioning program carried to completion. In addition to making your shop building more attractive with proper paints, the use of certain colors on dangerous power equipment can help make their operation much less hazardous and perhaps save some student's arm or fingers. Surely you will agree that any program that can make your farm mechanics work less hazardous is certainly worth considering. The entire program of combining colors in the right way for the shop is called a color dynamics or color conditioning program.

Advantages of Color Dynamics

Color conditioning has been used in factories for many years where it has proved its worth. The therapeutical effect on the workers in the factories, or in your case the students, is sufficient to make the program worth while. You are aware that certain colors have a cooling effect, others reduce tension, some are stimulating and cheerful while others are irritating and depressing. The output of the worker or student is greatly affected by the effect the colors about him produce. The selection of proper colors in a shop will have three definite advantages, namely: (1) to reduce unnecessary strain caused by an unpleasant color, (2) to reduce the hazards of machine operation which occur with strain, and (3) to reduce eye fatigue. Eye fatigue, the most important of the three, is caused by camouflage, glare, and constant eye adjustment. Therefore, the colors selected must be chosen to avoid causing these conditions.

Uses of Color Dynamics

Perhaps you are wondering where color dynamics should be used in the farm mechanics shops. There are many places. Basically, the walls and ceiling are usually considered first. Then power equipment and tools used in the shop are given consideration and finally the floors, aisles and mobile equipment. Of course, additional rooms, rest room facilities, locker rooms and storage rooms should be included in the completed plan. The classroom will also be carried through with the same plan as is used in the shop.

Color directs attention to moving parts of a power machine. This is a safety device as well as adding attractiveness.

Principles of Color Selection

The first step in color selection is choosing the basic color for painting the walls and ceilings. These colors should be determined by the quality of the light predominant in the room. Light rays coming from the south are warm and thus the paint chosen for the walls should be in a cool color such as green or blue. Light rays from northern daylight are cool and room colors should be warm such as tan, yellow, or coral. A truly optonic type of color system will provide colors which, when properly selected, will fortify the reflections of the wave lengths if deficient and soften the wave lengths which are excessive. Consider strongly the building of morale. Cool colors are very effective where room temperatures are high and light is excessive and thus workers will be under less tension and their morale will be affected.

Again, the colors to be chosen will depend on the exposure to natural light. Natural light will seem to concentrate on the wall or walls opposite the windows. This wall opposite the windows should be painted the darkest color of any of the four walls as this darker color will help diffuse the light rays throughout the room. In a room requiring a cool color, this wall opposite the windows would probably be a medium green or blue-green. The side walls would then be two or three shades lighter in a paint of the same intensity. The window wall would then be painted the lightest of any of the four walls. If the ceiling requires light reflection, choose a paint giving seventy-five to eighty-five per cent light reflective ability. These colors will usually be limited to white, soft-white, cream or ivory. If the reflected ceiling light is not important a tint of cascade blue or gray will help make the ceiling and any unsightly bracing seem to recede. Floors, if painted, should be in a harmonizing or neutral color. Gray is always a good neutral color.

A number of very good references are available for helping with color selections and ideas for color planning. Two outstanding references are a pamphlet from the Pittsburgh Plate Glass Company entitled "Pittsburg Color Dynamics" and another pamphlet "The Optonic Color Systems" from the Arco Company, Cleveland, Ohio. Almost any brand of paint can be used successfully in carrying out the color dynamics program. When using Pittsburg Paint, the color, eye-rest green, is very popular for planning the wall scheme. A color identical to this could be found in almost any brand of paint and should be equally satisfactory. After securing paint charts from your local dealers you can plan out your entire color conditioning program using either the cool colors or the warm colors depending upon the nature of your building and the light rays.

Naturally, the color dynamics program in relation to shop walls and ceiling should be planned with the school officials and included in the regular painting program. This first step of "conditioning" the walls and ceiling might be the only major step carried out during one year's time.

Use of Color on Equipment

Changing machines and equipment from the traditional machine gray to a color harmonizing with the color dynamics system has two purposes: (1) the machines are made more attractive, and (2) most important, attention is directed to the moving parts of the machine to make them less hazardous. The accompanying photograph shows two boys applying color conditioning to a tilting arbor saw. The base part of the saw is being painted Pittsburg's vista green enamel, a color which is restful and does not call attention to itself. The critical and more dangerous parts of the machine such as the blade guard and electrical switch are being painted focal orange, a color easily distinguished from the non-critical green parts. Later, the table will be outlined with focal ivory to set it off and to be easily identified as the working area.

Application of the above colors brings the important parts of the machine to the operator's attention and makes the

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When planning to build or remodel, consider your - - -

Shop facilities and their use

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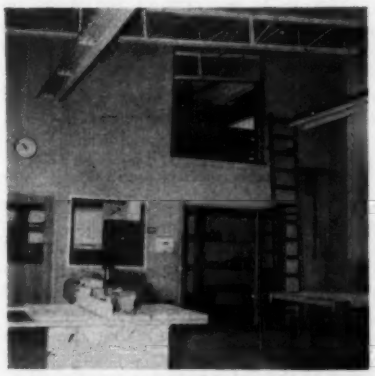
Elmer R. Sealover

THE farmer's investment in farm machinery has been increasing steadily in the past decade. With this new trend in farming the shop facilities in our vocational agriculture departments must be expanded to meet this mechanized trend in farming; the farm youth must be better trained along the phases of farm mechanization. A great number of the school districts throughout the United States are building new school buildings. If proper planning is done for the vocational agriculture shop facilities and properly used, these needs will be met. The recommendations in this article are to be considered the minimum and not the utopia for farm shops in our high schools today.



A corner of the shop room showing common stock room with lumber and iron storage.

The shop should have 2,700 square feet of floor space with a common stock and project storage room with adequate facilities for the storage of iron and lumber. This latter storage area can be above the common stock and project storage which should be at least 24 feet long with the front open for greater accessability. This type of storage provides for better housekeeping.

Immediately adjacent to the 12 foot shop door should be located the outside work-area and machinery shed. The shed should be enclosed on three sides and the whole area should be enclosed with a fence that is 8 feet high. The size of this area can be 2,000 square feet or more.

Outside work-area and machinery shed. Note location of shop door in relation to this area.

Enclosed machinery shed adjacent to large shop door.

Quite adequate electrical service would be provided by a channel or ducts underneath the combination wood and concrete floor. Usually three of these ducts, equally spaced and so constructed so that there are knockout plugs every two feet, will be sufficient. Each power driven tool should be on a separate circuit and be fused with a circuit breaker. The master control panel can be located in the common stock room and completely teacher-controlled. There should be emergency switches conveniently located in the shop proper and it is also advisable to have one in the agriculture classroom. The machinery shed must be wired so that it has 110 V and 230 V. This will enable you to do welding in the outside work area and shed.

North side of shop showing location of metal working tools.

When the shop machinery is placed consideration must be given to its use and the type of electrical service it will require. The most convenient location for all the metal working tools and equipment is at the end of the shop where the large door is located. This should include such tools as: power hacksaw, electric and gas welders, 10" pedestal grinder, and 17" drill press. Woodworking tools can be conveniently placed in the other end of the shop. A good arrangement is to place the 6" jointer and 10" tilting arbor saw together, the 14" band saw and 6" surface sander; and the 14" drill press and 6" pedestal grinder. The metal and wood lathes should be located so that the natural light can be utilized to its fullest extent. A very desirable arrangement for the chain hoist is to have it run to the large door, and, if possible, to the outside working area. This will necessitate the use of a folding door rather than one that is hung overhead. The steam jenny can be located or associated with the machinery or metal working area. The fact that it is portable does not create a storage problem.

A shop bench the full length of shop is desirable. Note the provision for light.

Locate equipment with respect to its usefulness both inside and outside of the main door.

A shop bench running the length of the shop along an outside wall is quite desirable. This bench should also have shelves enclosed with sliding doors and drawers underneath. Along with this type of bench there should be two or three large 4 unit woodworking benches. The bench for the soldering and electrical area can be of the same type as the bench along the wall except it should have a metal top. The electrical demonstration board and supply cupboards can be built in with this bench as one unit.

Along with the electrical service in the outside work area and machinery shed each department needs water facilities for the steam jenny and a drainage out-

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Shop Facilities - - -

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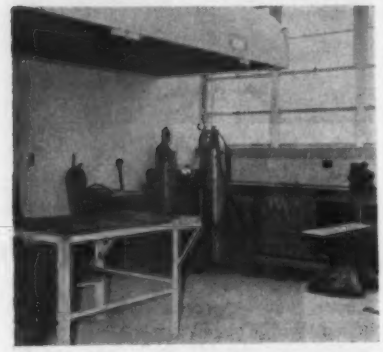
let which can handle the grease and dirt that is steamed off the farm machinery. The gate to this enclosed area must be located directly in line with the large shop door which will make it possible to drive directly into the shop without turning.



Close-up of welding area and hood with exhaust fan.

Some teachers have found it quite desirable to have a small greenhouse. The minimum size should be 12' x 36'. Also it will be necessary to have cold frames that possibly are heated with electricity. The greenhouse must be built so that it can be heated when the school plant itself it closed down for an extended holiday such as Christmas.

Metal hand tools can be stored in the general area of metal working. Portable tool storage for general woodworking tools is one method that seems to be quite popular with vocational agriculture teachers. The portable rack can be so constructed that it can be pushed into the common stock storage room and locked.

Portable tool panel showing tool storage.

Close by the shop or overall agriculture suite there should be located student and teacher lavatories with locker facilities.

These in general are recommendations which will be of some value to teachers who are planning or putting into operation new vocational agriculture shops. □

Home Farm Shops - - -

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of the relationships between attendance in organized classes of vocational agriculture and the establishment of home farm shops and between the ownership status of the farm operator and the establishment of home farm shops.

The level of formal education attained by farm operators appeared to have little or no relationship with the establishment of home farm shops. Little or no relationship was found between the sources of shop training received by the farm operators and the establishment of home farm shops.

Use Made of Shops

Eighty-eight of 114 farm operators used their shops to repair farm and home equipment and seventy-seven used the shops to repair machinery. Other uses listed included (1) construct farm equipment, (2) store machinery, (3) construct portable buildings, and (4) do custom work.

The dates of establishment of the majority of the shops included in the study coincided with the rapid increase in farm mechanization during the two decades from 1935 to 1954. Forty-six of the 114 shops were listed by the operators as being adequate for present farm needs. Forty-seven shops were inadequate in size, type of construction, and/or facilities. Twenty-five shops had insufficient equipment, six lacked space for machinery storage, and one was listed as not being fire-proof.

New buildings had been erected to house forty-seven shops at a mean present-day cost-value of $1,400.00. Existing buildings were altered to house shops on thirty-nine farms at a mean present-day cost-value of $833.00. Seventy-five per cent of the farm operators recommended that shops be located in either separate buildings or in partitioned rooms in such buildings as machinery sheds and barns.

Size of Shops

The data indicated that recommendations may be made for home farm shops in Pennsylvania without regard to the type of farm. Means and percentages indicated that the "typical" shop recommended by the farm operators should be thirty-six feet long by twenty-two feet wide with 760 square feet of floor space and ceiling height of 10.3 feet. It should have five windows with a total window area of 40.8 square feet, one entrance door, and one twelve foot wide machinery door of the sliding type. It should have four incandescent lights with a total wattage of 353. It should be heated with a stove located in the shop. It should have block walls, concrete floors and a gable roof trussed so as to leave the shop area free of posts. It should have three 110-volt and one 220-volt electric outlets.

In several instances, it was believed that the recommendations of those operators which were above the means should be given more consideration. The "typical" shop was too narrow to accommodate a 1½ ton truck, a combine, and most wagons. Since these machines require twenty-two feet for parking space, it was recommended that the shop be widened to twenty-six feet and shortened to thirty feet, giving approximately the same floor area as above. The twelve foot machinery door should be widened to sixteen feet to allow some combines to be pulled into the shop. The total window area should be increased to equal the adequate lighting standard of one-fifth of the floor area.

Equipment in Use

Hand and power tool and shop equipment inventories in 110 home farm shops were valued at a mean of $676.00. Those tools found on the largest percentage of farms in general received the highest value ratings. A grinder, probably a bench model, was found on eighty per cent of the farms. A drill, most likely to be a ½ inch portable, was found on eighty per cent of the farms. Air compressors were found in sixty-four per cent of the shops. A wood saw, in most cases a portable model, was found in fifty-nine per cent of the shops. A paint spray gun was found on forty-four per cent of the farms. A welder, in most cases an electric arc outfit, was found on thirty-eight per cent of the farms. Thirty-three per cent of the shops reported forges and twenty-six per cent had overhead hoists. Less than twenty per cent of the shops had any of the other types of power tools. □

Let Color Work - - -

(Continued from page 152)

unimportant parts recede. Thus, operation of this machine should be less hazardous. The saw had previously been prepared for painting by washing completely with a safe solvent to remove all dirt and grease. One precaution in painting equipment is to make certain that the name plate and serial number are not painted over as this information is usually necessary when ordering parts. There is a two-fold purpose of having Vo-Ag students apply the color conditioning to the machines. First of all, they are becoming skilled in the preparation of the machines and the application of enamel to metal. Secondly, the most important, there will be a definite carry-over and many of the boys will be applying color conditioning to the equipment in their home farm shops as part of a betterment project.

Each machine and even the hand tools in the shop can be treated as above with color. A complete list of suggestions for color conditioning all machines should be available from your college of agriculture or from some paint dealers.

Use of Color for Safety

For safety, in addition to using color on the shop equipment, color dynamics should also be applied to the floors, aisles, and movable equipment. For example, with the tilting arbor saw, a band about four inches wide will be painted in a square on the floor about three feet out from the saw. This band will also

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Farm mechanics instruction must be planned to - - -

— Emphasize the practical

TED A. BUTLER, Teacher Education, University of Wyoming

Ted A. Butler

FARM mechanics should not be a conglomeration of hit or miss practices. Skills should be developed and advanced in a manner that they will be both challenging and beneficial. They must meet the needs and stir the interests of the boys. These skills must be held within the realm of a boy's ability for a better understanding. Too many times the teacher believes a series of type jobs is sufficient. This leaves the pupil without any practical application or worth-while project and fails to promote the needed interest. The ability of a pupil to make the transition from practice to the practical is also questionable. The application of skills to practical projects often requires instruction which was not given in a practice or type job. There should be practical practice and application of skills in a well planned farm mechanics program. The quality of the skills should compare favorably with that developed in the trades instead of resorting to halfway methods. All of this should lead to efficient utilization of the farmstead facilities and equipment.

Examples

An example is set up in each of the five areas of the farm mechanics program to make the plans more practical and to functionalize the skills taught. These areas are: farm shop, farm buildings and conveniences, farm power and machinery, soil and water management and electricity.

Farm Shop. Numerous basic jobs should be taught in the first year, usually to include fitting and using hand tools. This instruction should be given and carried out on actual tools with an end result of supplying a home farm shop. This type of instruction will create boy interest and encourage competition and appreciation in the care and use of the common tools. The basic skills of arc and acetylene welding may also be taught in the first year program. The pupil, although not perfect in all positions of welding, should be applying his new skills to various pieces of worthwhile "take home projects." At this point, further instruction should be given to broaden and make adjustments in the application of skills learned. Never underestimate the value of the take-home project. It gains and holds the interests of the pupils, parents and teacher.

Farm Buildings and Conveniences. Here the partial use of the steel framing square may be taught in the first year and such jobs as rafter framing and figuring bills of material may fall in the second year. Shingling and finishing might be done in the fourth year program. It would be possible to construct useful buildings within a short time and also supply a worth-while project to create better learning situations. Many parents are glad to supply the needed material for their boys to learn to do by doing. Care must be taken to keep this from becoming a service to a few individuals.

Farm Power and Machinery. Many farms have equipment which needs repairing. A tractor belonging to a boy's parents could serve the school as an instructional device. Be sure the machine is steamed before instruction is started. Minor repair and adjustment could be taught in the second year. Major repairs of cooling systems, carburetion and ignition would fall in the third year. The fourth year group may do major repairs of an internal nature. Always complete the project with a final paint job. Make sure your work involves a piece of farm machinery, *not* the boy's old-wreck automobile. If instruction is to be based on the needs, interests and abilities of the pupils and given at the time when it will be immediately applied, such jobs as the selection of tractors can be assumed to be an activity for the young farmer group.

Soil and Water Management. This should involve skills which are needed on the farm. Planning and controling erosion through seeding and diversion, surveying and placing new ditches to better serve the farm are examples. This may be for third and fourth year instruction along with construction of diversion boxes. Such jobs may be developed in the classroom but must be carried out on the farms. An attempt should be made to do jobs on each boy's home farm. On-the-farm group experience should not be duplicated on the same farm each year but should cover the school area.

Electricity. This is an important factor on farms and warrants many jobs. Some of the instructional needs include safety, types of electricity, wiring, motor maintenance, reversing motors and jobs involved in construction of pig and chick brooders. Instruction in the basics would be second year work with the more advanced jobs falling in the third and fourth years.

In every case used here an attempt has been made to show practical instruction with actual and worth-while projects done. Utilizing the home farm and its equipment will make the instruction real and interesting. Remember that the job should be done well and compare favorably with that of the "trade" which it represents. Always apply the skills to something of a practical nature which will assist in the operations on the farm. Substitutes for practical jobs result in poor instruction. When the practical is replaced with practices only, much of the necessary instruction is by-passed. Application to the practical may never come about. A type of job which requires such skills as sharpening saw strips, squaring a block, studying a cut-away engine, soldering strips and making coupons very seldom have interest getting qualities. This is most important in teaching.

The skills and areas listed require integrated planning on the four year level with each individual being considered. Get acquainted with the parents and plan all the instruction in advance. Then utilize farm mechanics for the necessary skills in the proper year and at a proper time so that the machines are not being held out of use too long. Make sure the completed project is a credit to your program. Stear clear of type jobs or substitutes because they lack interest, are not needed and create discipline problems.

The take-home project does a great deal to sell your program and also makes pupil, parent and teacher planning imperative. □

Let Color Work - - -

(Continued from page 154)

be of focal orange to indicate that the saw is a dangerous piece of equipment and will help prevent a student from getting too close to the saw while another student is operating it. Focal orange is also used on such items as hoists and cranes, movable bins and other objects to warn of the possible danger. The color, focal orange, is used universally as a safety code color to indicate danger.

Yellow, a highly visible color, may be used in combination with black bars to warn students of permanent objects which they might fall over or bump against overhead. Perhaps you can visualize how effective yellow and black bars could be to warn a student.

Areas around fire fighting equipment should be banded or painted in solid red. The area behind the equipment should be blocked in red and in large shops a red band near the ceiling and on the floor may be used to readily identify the location of the fire equipment.

Blue signifies "out of order" and should be used in the form of large blue tags on any machine that is being repaired or is out of working order. Of course, an additional safety precaution in such a situation would be a safety lock switch on the machine.

Green, a dark shade, is also used to signify first aid supplies. A green background with a white cross identifies the first aid cabinet.

The above very briefly outlines some of the ways in which colors can be used advantageously in the vocational agriculture farm mechanics shops. The carrying out of a complete program might very likely be spread over a period of two or three years. □

How do you determine instructional content?

There are several questions to be answered

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Robert J. Loughry

THE instructional content for the program in farm mechanics should serve the needs of the farms in the school community, and more particularly, it should serve the individual needs of the boys enrolled in vocational agriculture.

The instructional content in farm mechanics *can* be the most meaningful in the entire program of study for vocational agriculture, for it is comprised of those experiences which the boys may acquire with the greatest ease. Every attempt should be made in the development of the instructional content for farm mechanics to free ourselves of the "mumbo-jumbo" and meaningless "busy work" which educators are inclined to employ.

We should be systematic in our study of the needs of our community and our boys in the development of our program for farm mechanics. To do this we should investigate the following questions:

1. *What are the farming enterprises now developed on the farms in the school community?* It would be asinine to teach a truck farmer how to adjust and operate a milking machine. With farm mechanics so very complex, we can only teach the boys those skills most closely allied with the jobs and enterprises in which they will be employed on their home farms. The enterprises now on the farms should give the teacher of vocational agriculture the necessary insights into what machinery and farm mechanics skills will be used on the farms. The vocational agriculture teacher can better ascertain the skills needed to operate such enterprises on the farms in the future if he knows what ones are practiced on the farms today.

2. *What farming enterprises might be developed on the farms in the school community in the future?* We should never be blinded to the possibility of change in the business of farming. If the agriculture in the community should change at some near future date, it is the vocational agriculture teacher's responsibility to train his pupils so that they will be better able to make the necessary adjustments. This is particularly true in the area of farm mechanics, because more and more of the farmers' dollar is being invested in machinery, equipment and buildings to operate the farm. We can borrow a slogan from the Boy Scouts and "always be prepared."

3. *What are the particular aptitudes of the boys in my classes?* Many times I have heard teachers say that they didn't care if the boy was suited to the situation or not, he had to learn a particular thing because he needed to know it. What good are all those test results in the files if they are not put to use in the classroom, and what better and more practical place can the teacher find to put them to use than in the farm mechanics program? Surely, the area of farm mechanics in vocational agriculture calls for as much, if not more, individualized instruction than any other area. If we ignore these many and varied aptitudes we are only cultivating trouble for ourselves, and, in truth, we are breaking the code of professional ethics for teachers. Many of us, however, continue to devise programs which have very little relationship to the boys as they come to us. Many times, the only relationships existing between the program in farm mechanics and the actual aptitudes of the boys is purely accidental and certainly not planned.

4. *Are the skills practical, or are they the type which the farmer is going to hire done by specialists?* If the vocational agriculture teacher takes the time to teach complicated skills which the farmer could hire done better (and cheaper in the "long run") by skilled help, then the program in farm mechanics is not giving the boys those very basic skills which they are going to need and use. Many people have gotten excited about boys being able to accomplish some small group of complicated skills in farm mechanics. Such accomplishments are spectacular but very misleading. The boys studying farm mechanics need to know a great variety of skills which they are going to be using in the every day business of farming. They need to know those skills which are going to raise their standard of living and the standard of agriculture in their own community.

5. *What machinery, equipment and buildings are best suited to the geographical location and terrain of the school community?* We cannot use the same machinery, equipment and buildings on all farms. Different types of farms call for specialized farm mechanics. There is no excuse for us to fool ourselves. If certain farm mechanics skills are not needed in a community because the slope is too great or the climate too cool, then why should the vocational agriculture teacher include such skills in the instructional content for farm mechanics? Certainly, the chances that they will ever be used are rather slim. Wouldn't it be of much greater benefit to the community and more particularly to the boys to place the emphasis in farm mechanics on those areas and skills which are going to be of the greatest use?

6. *What percentage of the boys enrolled in vocational agriculture classes will be farmers?* We should not overlook the fact that some of the boys enrolled in our classes will find their life's employment off the farm. True, they may have high hopes of being on a farm, but that doesn't cover up the fact that part of them will end up in business, the mill or a factory. It would be very satisfying if somehow the teacher of vocational agriculture could tell what the future employment of his pupils would be, but he can't. He can, however, determine what has become of the past graduates from his department and base his decisions on such data. There are "idealists" teaching vocational agriculture who would say that so long as such pupils are enrolled in vocational agriculture they should study what everyone else studies — that there should be a patented program of instruction for everyone. Such an attitude on the part of the teacher cheats the boy out of part of his right to an education for living. We cannot afford to generalize our instruction to the point where it will become non-agricultural in nature. Nor do I agree with some that the non-farm boy should be encouraged to enroll in vocational agriculture. Let's face it. Some of our best boys from our best farms are going to be crowded out. That's the way our economy has developed. There just isn't room for them, yet they will be a part of the vocational agriculture class. Can we afford to cheat them?

7. *Will the type of program I am developing permit the type of instruction we want in vocational agriculture?* "Learning to do. Doing to learn." Every program in farm mechanics should be chuck full of the *doing*. We cannot get to the individualized instruction if we do not get around to the *doing*. The program should have plenty of elasticity in it too. The teacher is a sad case who is hemmed in with instructional content in his program to the point of not being able to teach what he wants or what is needed. □

For one of his first FFA projects, Weyman Smith of Lakeland, Georgia, chose to paint the family's rented farm home, a 50-year-old frame structure that had never been painted before. With the help of his vo-ag teacher, W. L. Cox, young Smith arranged with the landlord to furnish the paint.

In applying two coats to the house inside and out, Weyman used more than 80 gallons of paint and won the district FFA painting award. Pictures show a close-up of Weyman and Mr. Cox, during the painting process.

Some needed answers to a much debated problem

Training in Non-Farm Agricultural Occupation for Young Farm People*

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MUCH interest has arisen in the past years in aiding farm boys to become established in non-farm agricultural occupations. This is due primarily to the mechanization of farming and the separation of production of farm commodities and the marketing and services that are now offered to farmers by other agencies. Specialists in all phases of service to the farmer are now available at a cost less than that for which farmers can do the job. This opens a wide range of related jobs that people with a farm background can and should be doing rather than people with no background in this field. It also lowers the need for people to work directly in farming.

It then becomes the duty of vocational agriculture teachers to guide these farm boys who cannot become established in farming into this opening field.

What Are Non-Farm Agricultural Occupations?

Experts in the field of agriculture are not agreed on what occupations should be included in this field. Instruments to measure the ability of farm boys compared to non-farm boys are few. Yet this is one criterion that must be established before a definite statement can be made that any farm boy can do a better job in a particular business than a boy with no farm background. Some people would include any business that deals with farm people on the basis that a farm person can talk the farmers' language and be sympathetic to the farmers' cause, hence, be able to sell clothing, fuel, or any other product to farmers at an advantage. Others are more conservative in their thoughts and believe that only those occupations that deal directly with the raw products which farmers produce and use along with direct services to farmers should be included.

Wherever the line is drawn is not totally important at this time. The need for these services and the opportunities for farm boys both are present. What can we as agricultural teachers do about it?

Age of People Wanted by Business

The Allegan area was studied with the objective of giving cooperative high school training to students who were interested in going into this general field. Upon surveying businesses that were directly related to agriculture, it was found that some could or would not use high school students in their establishments. The fear of liability for employees under eighteen years of age was great. The thought on the part of the business managers that these students would be too immature and lack pride in their job was also apparent. They would prefer people that have finished high school or even completed their military service. It was felt that these people would be more stable in their thinking and actions and would be more interested in advancement with the firm and therefore do a better job for their employer.

Some types of businesses would prefer high school students in their business establishments because of the seasonal nature of their work. Some businesses such as nursuries, floral shops, small implement dealers and the like could employ people only during the busy times of the year and could take high school students into their firms on a part time basis. Even here the age of the student would prevent him from getting the full training due to hazards in the business.

This feeling opened up a whole new concept of training boys for these occupations. Perhaps we should be thinking in terms of helping to train out-of-school youth for these jobs as well as guiding qualified high school students toward training in high school that would better suit them in their future occupation. Granted, the best training that a person could get in his own small community is from the business managers. There is still a responsibility of an agriculture teacher to aid this young farm person by helping him meet the problems in this new employment.

Types of Students Interested in Non-Farm Argricultural Employment

A survey conducted in the vocational agriculture department at the Allegan High School showed some interesting facts. Students who were fairly well established in farming, as indicated by full time employment at home, were not especially interested in non-farm agricultural occupations. But as the opportunity to farm at home lessened, their interest in these occupations becomes greater up to the point where the student had had no farm work experience. The latter students were not interested in any type of agricultural work.

This points up the need for guidance of farm boys with little opportunity to become established in farming into fields related to agriculture. Some of these boys may start their training while still in high school in some of the businesses. Enrolling in a cooperative diversified training program in the schools where it is offered could be an answer for this student. Vocational agriculture could be used as related training in this field. Where such a program is not available, a student could work after school and on Saturdays in a non-farm agricultural business and use the vocational agriculture teacher for a resource person to aid him in finding more information about his occupational interest.

Objectives for Young Farmers

Young farmers may be interested in non-farm agricultural businesses for several reasons. They may not have an

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*This article is based on an M.A. Problem, *A Proposed Program of Cooperative Training in Non-Farm Agricultural Occupations in Allegan High School*, Michigan State University, East Lansing, Michigan, July, 1955.

Training would not have to be limited to boys alone. Here a farm girl is getting co-op training in office work at a feed mill.
(Pictures courtesy of Elmer Rewalt)

A farm boy can gain valuable experience in doing actual mill work. It can help to confirm his interest in this work and he could later advance more rapidly in this business.

Vocational agriculture in Egypt

L. M. SASMAN, Supervisor, Wisconsin*

Louis M. Sasman

THE program of vocational agriculture conducted by the Ministry of Education in Egypt in cooperation with the Foreign Operations Administration (now the International Cooperation Administration) began with the signing of a contract on April 3, 1954, which named three secondary agricultural schools as demonstration schools, and provided for the establishment of one new school. It also designated funds to be used for equipping the schools and for providing a teacher training program.

There are twelve secondary agricultural schools in Egypt with an average enrollment of about 20 boys. These are terminal schools. The students are boys who have completed the program of the preparatory schools but have not been able to get into the University either because they could not pass the examination or because their grades were not high enough so that they were among those selected for University training.

The teachers in these secondary agricultural schools are mostly graduates of the "faculty of agriculture" at the University of Cairo although some of them are graduates in agriculture from Ein Shamp University at Heliopolis or Alexandria University. They do not necessarily have a farm background or any experience or contact with farming.

In setting up the cooperative program, the first step was the establishment of close working relationships with the Ministry of Education.

As a "counterpart" for the specialist in vocational education in the United States Operations Mission to Egypt, Dr. Aly Shoeb, the Director General of Vocational Education was chosen by the Ministry. He then designated two members of the staff of the Ministry of Education who worked full-time with the American staff in setting up and conducting the program of agricultural education.

The first step that was decided upon was the establishment of a program to provide some practical training for Agricultural Teachers. About 20 teachers were selected and were enrolled on a three-months training program. Through cooperation with the University of Cairo, at Giza, and the Ministry of Agriculture, they were given practical training on the farms and in the laboratories in such subjects as orchard pruning and grafting, poultry culling, treating seed grain, canning and drying fruits and vegetables, preparing slides of plant diseases, and making cheese. There were lectures one day a week given by leaders in agriculture from the Ministry of Agriculture, the University or other Ministries or Agencies. Two of these 3-months courses have been conducted for a total of about 45 teachers.

Opening Session, Summer Conference for Secondary Agricultural School Teachers of Egypt, University of Cairo, Giza, July 12, 1955. Speaker: Admiral Harold R. Stevens, Director, USA Operations Mission to Egypt. Front Row: Dean Aly Kamal El Ghamrawi, Faculty of Agriculture; Dr. Harold C. Coffman, Acting Chief Education Division, USAOM/E; Dr. Abd El Razek Sidky, Minister of Agriculture; Major Kamal El Din Hussein, Minister of Education; Mudir or Governor of Giza Province.

A summer conference program was also set up for secondary agricultural teachers. The first conference had been held at Alexandria in 1953, a second in 1954 and the third was held at Cairo in 1955. These conferences were set up on a basis similar to vocational agricultural conferences in the United States. The first two were largely lecture conferences while the third was largely a discussion conference. Some field trips were taken in connection with the first two to farms and other establishments in the vicinity of Alexandria. There were about 70 teachers enrolled each of the first two years and about 120 the third year.

A third phase of the program provided for sending two men to the United States for a six months period of training. Men were selected who had had outstanding records in Egypt, including experience in the secondary agricultural schools. One was a farm owner; the other had had a number of years of experience in farm management. Their program included the observation of vocational agricultural departments and the teacher training and supervision programs in eight states. Excellent cooperation was given by the states in providing the best possible opportunities for observation.

This next year two men are to be sent for nine months of farm mechanics training. The fourth phase of the vocational agricultural program was the development of a series of "suggestions regarding the program of agricultural education in Egypt."

Work was begun early in the year in studying the whole program of agricultural education and making such recommendations for change as seemed feasible. This was done through staff meetings of the Egyptians and Americans and constant consultation with Hafez Assaad, the General Controller of Vocational Agricultural Education (corresponding to the Chief of the Vocational Agricultural Branch in the United States) and Dr. Aly Shoeb, the Director General of Vocational Education for the Ministry of Education.

After this plan had been completed and revised a couple of times, it was submitted to the headmasters, the inspectors and finally the teachers of the agricultural schools and received the hearty endorsement of all groups.

These "suggestions" covered the aims of the schools, the requirements for enrollment, means of encouraging enrollment, responsibilities of the headmaster, qualifications of teachers, suggestions for establishment of school boards, suggestions for modification of the curriculum and provisions for practical training.

It is impossible here to more than touch upon some of these items but they included the following points:

I. That the aim of the secondary agricultural schools included the following:

A. To train men to work with farmers in an advisory capacity (as agriculture extension agents for example).

B. To train men with an agricultural background to work in agriculture and allied industries.

C. To give basic training in agriculture for becoming apprentice teachers for agricultural subjects in the preparatory schools and the primary and post primary schools.

D. To train men as farm operators or foremen or as chief farmers on government farms or other farms.

II. Requirements for enrollment should include:

A. Students should have a farm background.

B. First choice should be given to sons of farm workers or owners.

C. Second choice to students whose fathers are in agricultural industries.

D. Students must be graduates of the preparatory schools.

E. Students must be at least fourteen

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*Mr. Sasman currently is on leave from Wisconsin and associated with the International Cooperation Administration, assigned to Egypt.

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years of age and should not be over 18 when enrolling.

III. To encourage enrollment, it was suggested:

A. That all of the schools should be boarding schools and that the board should be given without cost to the pupils.

B. That the system should be continued of placing graduates of the secondary agricultural schools in Grade seven or better in government employment.

C. That successful graduates should be given credit from the agricultural loan bank toward the purchase or renting of land or to start an agricultural business.

D. Books and other such items of expense should be free.

IV. Teachers should be university graduates and have one year of pre-service training and systematic in-service training as determined by the Ministry of Education.

V. That each secondary agricultural school should have a school board made up as follows:

A. The Headmaster to act as Secretary.

B. Two teachers selected by the teachers.

C. The inspector of agriculture for the province.

D. The technical Education Controller of the district.

E. The Controller of Social Affairs.

F. Three members representing the community—one to be elected chairman; two of these members should be farm owners or operators living in the school area.

The plan also outlined the advisory duties of the Board and stated that it should meet at a regular time at least once a month.

VI. The curricula of the schools of Egypt are determined by the Ministry of Education. This plan suggested some changes in the curriculum as far as lectures were concerned and that there should be each week, twenty-eight hours of practical training including laboratory and farm work and such instruction as may be necessary to study farming problems related to the particular area, distributed by the school board according to the community needs.

VII. In regard to practical training, it was suggested that the school farm should provide practical training for the students in all phases of farm work and farm operation; that most of the work on the farm should be done by the students; and that the operation and financial management of the farm should be under the direction of the headmaster.

Upon approval by the Ministry of Education, this plan will be applied on an experimental basis in the three demonstration secondary agricultural schools this next year.

There are many views as to the duties and procedures of technicians in the International Cooperation Administration. The program of vocational agriculture in Egypt is being developed on the theory that the responsibility of the American technicians is to give advice based upon their experience. Customs and traditions vary greatly in different nations. The fact that a program works well in America is no assurance that it will work equally well in another country. On the other hand, American technicians are being asked for and sent to other countries because various programs of education, agriculture and industry in the United States have attracted world-wide attention. The duty of the American technician is to attempt to adapt his recommendations to the conditions of the host country. The final action as to practices or procedures adopted must be the responsibility of the host country. □

Training in Non-farm - - -

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opportunity to become established in farming and, therefore, use this for an alternate occupation. They may want to make this their lifetime work. Others may use this type of work for a part-time job while they are buying a farm and equipment and use this type of work to aid them in becoming established in farming. A person of this type may never advance far in non-farm work because of his objective of getting into farming, but it would be a financial aid to quicker establishment. Still others may lack the desire to farm because of childhood experiences on the farm and a dislike for the working hours of farmers. Non-farm agricultural occupations may be something that he may advance in more rapidly because of his background and still be removed from direct farm work.

Training for Young Farmers

After a young farmer has received employment at one of the non-farm agricultural businesses, he may desire further background material in his selected field. The vocational agriculture teacher could aid him here. He could act as a resource person and aid the boy to find materials that could make advancement easier and quicker for him.

Two forms of instruction could be used that would follow the present young farmer programs that are in operation. The first would be of the group instruction plan. Under this plan, students from all of the non-farm agricultural occupations could be present. Instruction of a general nature would be offered. Examples are meeting people, bookkeeping, business management, etc., which could be offered by a qualified person. New things in agriculture that would keep the students abreast of agricultural advancement along with basic understandings of common practices in the community also would be dealt with by the agriculture teacher. Individual instruction could be along the line of the chosen occupation of the student. This type of material could be determined by periodic visits with the student and employer while on the job.

The second type of training would be individualized instruction where the students need not get together in a classroom situation. This may be necessary when only a few students in a community would be interested in this type of training or to overcome the element of time when students and instructor could get together. The teaching could be of a type where the student, employer, and teacher could get together periodically and point up the things that would aid the student in becoming established in this business. The teacher would act primarily as a resource person in getting the information which the student would need.

In either type of training program, the employer would be the chief source of training for the student. The agriculture teacher would be the coordinator and resource person to serve as the connecting link between the employer and the employee. He would try to make the instruction more effective and help point up the weaknesses of the student to himself to help him advance in the business.

Summary

There is a need to train farm boys for occupations other than farming. Many new jobs are opening in the field of non-farm agricultural occupations which perhaps a person with a farm background could do better than one with no farm background. The vocational agriculture teacher is in a good position to help guide qualified students in this direction and to offer training of a general nature to them.

Training of this nature may be started in a small way in high school, but the best type of training is when the problems are real to the student—when he is depending on the job to make a living for himself and his family. It is the opinion of the writer that these farm people should not be left out, but that some type of training be offered to them. Perhaps the vocational agriculture teacher should not be the person to do the teaching, but it is his job to guide students in this field and help to establish a training program for them. □

Bob Craig, Assistant Professor of Agricultural Engineering at Texas A. & M. College, stresses the importance of proper house wiring at a meeting of the A. & M. Collegiate FFA Chapter. Professor Craig's electrical demonstration will be presented this year to approximately 500 teachers of vocational agriculture throughout the state of Texas.

How do you cooperate with other agencies?

A former teacher gives advice as an agency representative

VINCENT J. MEYERS, Agriculture Representative, Portland Cement Association

Vincent J. Meyers

WITH another school year in progress, hundreds of vocational agriculture instructors are experiencing for the first time the problems of what to teach, how to teach it most effectively, and where to obtain specialized assistance. Veterans in the field of Agricultural Education have faced these same problems in the past several decades. Many have found workable solutions to these problems but some are still thinking in terms of what might be done—maybe next year.

Our agricultural facts, figures, and terminology require constant revamping to keep in step with the technological, economic, and social changes affecting our farmers today.

The ten thousand or more agriculture instructors in the United States have a profound influence on the economic and social well-being of the Nation's farmers through their high school, young farmer and adult programs. By cooperating with other influential agencies, this influence can be expanded.

Agencies such as the Agricultural Extension Service, the Soil Conservation Service and the Farmers Home Administration are named by personnel whose educational background, agricultural experiences, and philosophy are closely allied with that of the agriculture instructor. It is not only natural, but imperative, that for an agriculture teacher to be effective he must cooperate fully with these agencies.

Many Other Agencies

However, there are many other agencies with whom the agriculture instructor might cooperate. Included are the commercial and industrial organizations who supply the farm power, manufacture the farm implements, process the meat and other farm produce, purchase the grain, supply the building materials, and merchandise the commercial feeds, fertilizers, and chemicals. In acquainting oneself with the local representative of these agencies and by reviewing their literature, charts, films, and other educational materials, one can become aware of their objectives and be in a better position to cooperate in serving the widespread and differing needs of farm people.

When I mention cooperation, I am thinking in terms of Webster's definition of the word—"A collective action for mutual profit or common benefit." Thus, if a representative of industry uses an educator merely as a tool to promote his own interest or if an educator uses an industrial representative as a program space filler, the action can hardly be classed as true cooperation.

During the past summer I had the pleasant experience of taking part in a cooperative venture through which fifty-four vocational agriculture instructors received two days of concentrated, practical experience in masonry construction. These workshops developed as a direct result of cooperation between the agriculture instructors, the agriculture teacher training department of the University of Minnesota, the Portland Cement Association, the Minnesota Concrete Products Association, six local products producers and builders' hardware supplier.

Teachers Should Do Some Planning

As a former agriculture teacher having now completed ten years of experience as a commercial representative, I would like to make a few suggestions that I hope will be helpful to instructors in planning programs with industrial representatives:

Attempt to schedule speakers at least two months in advance and list optional dates.

Make suggestions as to type of information desired and length of program. Give exact time and place of meeting.

If audio-visual equipment is needed, make sure it is in working order and provide suitable room for projection.

Introduce speaker by correct name, title and affiliation.

Stimulate discussion by pertinent questions.

A note of appreciation is good professional ethics.

Suggestions for improving a program are always appreciated.

Using Materials

Films and literature constitute a major portion of the educational material available from many commercial organizations. If used wisely they can be of much value; if used haphazardly, they may be a waste of time for the instructor and a waste of money for the commercial supplier.

Schedule films well in advance and give alternate dates.

Preview film before showing to class so that it may be properly backgrounded.

Return films promptly and enclose notice of any damage to film that may have occurred.

Attendance reports and comments are important.

Revisions and new films are based on these reports.

A group of agriculture instructors participating in a concrete masonry school at Cloquet. A good example of cooperation between education and industry.

Good literature is expensive. Request literature by subject matter desired and quantity needed. When an instructor says, "Send me fifty copies of everything you have," I doubt if any of it will be used effectively. It is better to order a copy of available literature. Review the literature and decide which has educational value. Then order the number of each piece desired.

There is a great potential for cooperative activity in almost every community. Cooperation with the local press, radio, civic and commerce groups, and local business firms can do much to improve the status of vocational agriculture in the community.

THE "SEED" OF COOPERATIVE ACTIVITY LIES WITHIN THE SCHOOL SYSTEM ITSELF. AN INSTRUCTOR WHO CONSISTENTLY COOPERATES WITH HIS ADMINISTRATORS AND CO-WORKERS CAN EXPECT—AND GENERALLY GETS—THE BEST COOPERATION FROM OUTSIDE AGENCIES.

Finally, cooperation with any agency is merely being able to cooperate with the individuals who represent the agency. If we make an effort to know these individuals, recognize their objectives, and are tolerant of their viewpoints we can usually find the field of collective action for mutual profit or common benefit—cooperation. □

The Farm Safety contest awards made in the 1955 FFA convention went to the following Chapters: Brighton, Colorado, representing the Western Region and National winner; **Louisa County, Mineral**, Virginia, representing the Southern Region; Audubon, Iowa, representing the North Central Region, and Delmar, Delaware, for the North Atlantic Region.

A total program in Vocational Agriculture

The end product—trained farmers in farm management educational services

DON E. WATKINS, Vo-Ag Instructor, Gaithersburg, Maryland

Don E. Watkins

THE thesis of this article may be summarized as follows: "Systematic teaching during all twelve months of the year, year after year, with an allocation of teaching time according to relative values of individual needs will result in the desirable end product if a type of farming or other core interest based on an action program is operated in a cooperative and democratic manner. Such a program should provide for group and individual objectives or goals, balanced farming, effective means of measuring progress and provisions for improvement and expansion."

It is our aim to start early and train continuously the greatest possible number of persons who are or will operate the farms in our community in present and future years. This means we must start with the boy who enters the eighth grade and continue to work with him as long as he has needs, problems, goals and a desire to learn. The first or prevocational year of training is largely one of stimulation, guidance or a starting period. During the period of vocational training (grades 9, 10, 11, and 12) we emphasize contests, supervised farming programs, expansion and efficiency in production as measured by *physical factors of efficiency.* The third group consists of out-of-school young farmers whose main interests are father-son agreements, getting established in farming and classes in farm machinery. The young adult farmer who is our fourth classification is interested in discussing new information, practices and methods. The last or fifth group is mainly interested in efficient farming.

How It Works in One School

There are about one hundred boys in our regular school classes, about fifteen young farmers, fifty-two young adult farmers and fifteen farm management members, who are also members of the young adult group.

From our experience we find much more effective work can be done in the most advanced classes where the student has passed through all stages of our various training periods. For that reason we emphasize the importance of total teaching and insist that each of the two teachers cooperate and work as much as possible in every area of our training level. During the past year I taught one class of regular high school boys, was head of the department, carried on most of the work with the young adults and the farm management groups. Mr. Wayne Busbice taught six regular high school periods and took the leadership of the young farmers in a class for machinery repair. Both of us actively advised the Future Farmer Club and supervised the school farm.

The high school students made up the agriculture classes according to the grade they were in school except for the eleventh and twelfth grades who are usually grouped as one class. The young farmers meet as a single group. The young adult farmers meet as a class and include all the farm management group and a few young farmers. The cooperative farm management group holds additional meetings for its own group on problems related to its members. General farm management classes, including farm analysis reports, are held during classes for the young adults. Each group holds various meetings of its directors or executive or other committees.

We find our best students pass through the various stages of training very fast. We encourage high school seniors who live on dairy farms to work with their fathers and mothers and become members of the farm management group.

We have four young farmers who are also members of the young adult group. This is because these boys feel a need for both programs. A student may join the group he cares to, regardless of his age, although the young farmers are mostly less than twenty-five years of age. The young adult student ranges from twenty-one to fifty-seven years of age with a median age of thirty-six years. The range of age in the farm management group is from twenty-two to forty-seven years of age with a median of 31.5 or an average age of 32.7 years.

Our patronage area extends from about ten miles from Washington, D. C., northwest about thirty-five miles toward Frederick, Maryland. Gaithersburg is twenty miles northwest of Washington on U. S. 240. Our major type of farming is dairying. All of our members' milk is whole milk handled in most instances in bulk by The Maryland-Virginia Cooperative Milk Producers' Association. There are a number of purebred beef farms in the county purchased in the last fifteen years with outside funds.

In no instances have our young farmers established a farm on their own as most of them are working with their fathers or someone else. Of the fifty-two young adult farmers, twenty-three are partners, twenty-three are owners, three are farm laborers and three are farm managers. Slightly more than one-half of the farm management group are partners with their fathers, the others being owners with varying amounts of equity.

How the Program Is Working

As a result of our experience with high school and out-of-school groups, we have arrived at several conclusions that we feel are essential to the success of the type of program our farmers deserve to have and which is the program we are trying to give them. At this point we want to emphasize our program is only in the beginning stage. We have a long way to go to reach our objectives—in other words our progress should be mostly ahead of us. The conclusions are:

1. *Real vocational training should include total teaching or the servicing of the individuals' life-time needs during every month of the year, year after year.* Young and young adult farmers need to understand many basic principles of agriculture so that they may solve many of their problems without on-the-farm assistance. The solution of many other problems will require assistance on the farm. These needs requiring on-farm assistance may develop in the winter while the teacher is holding a series of meetings, but the pressure of work is so heavy the teacher is unable to make the contact, while the farmer, understanding the work load situation, drops the whole matter. If the teacher happens to make the farm contact in the summer when he has time, he usually finds no problem except the one of making an excuse for stopping by. We know from our experience and the experiences of numerous teachers that this is a very serious problem and one that does not lend to rendering effective educational services to the out-of-school groups.

In order to overcome such serious situations it is necessary (1) to provide time to do important work and (2) to set up a real program in educational services for our farmers. *We teachers should have a well-planned program before asking for time.* Several years ago we organized our Cooperative Farm Management and Business Educational Service Association which takes the vocational agriculture teacher (farm advisor and management supervisor) on the members' farms regularly. For example, we must go on the members' or students' farms in the Fall to work on income tax management problems. In January tax forms must be checked over for accuracy with the student. At the same time assistance is given in the matters of inventorying, closing records and starting records. Many contacts are made during the winter months in connection with making farm analysis. May and June are the months of going on farms and talking over the individual's farm analysis. This is followed by planning and action which often takes years to execute. Along with this the student receives much assistance related to production and marketing. These aids are given to the student because the advisor is on the farm or is due to be on the farm. Where there is no systematic on-farm contact program these many serv-

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A Total Program - - -

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ices would not likely be given.

Young and young adult farmers cannot and will not depend on any educational servicing agency that does not give adequate and prompt service.

2. *An educator's time and energy must be allocated to the individual student needs according to their relative importance, which includes a consideration of whether or not these important needs are being met by any other educational agency.* Some farm problems are relatively unimportant, others very important. It is our job to study and analyze the business of our members so as to bring to their attention their own problems in light of their relative importance and then assist the farmer in attacking these problems according to a priority schedule based on the relative value of the various problems. Time and energy spent on a large number of minor problems for various individuals result in an overall ineffective and inefficient teaching program. If another agency is doing a satisfactory and adequate job with a large group of farmers, it is questionable if we should enter the field, although it should be pointed out that vocational education is specifically set up to give the systematic type of teaching our program requires.

3. *Every out-of-school class should have an interest core to carry the work during the entire year and over a period of years.* Without a core activity it would be very difficult to make systematic farm contacts and give prompt service to unexpected calls. The regular farm contact is the basis for most all services. Where regular farm contacts based on core activity are not made because of the lack of time, we experience few unexpected calls. The students of a "series of meeting" classes look upon the teacher's job as being confined to the classroom and usually feel that the educational services they receive are confined largely to theory and limited to a few months of the year. Our major core interest is cooperative farm management and business educational services. It is indirectly the core interest of those not in this service, for this group is continually watching, listening and talking to those in the service about the program and are joining the group about as fast as we can enroll them. The class attendance record of our farm management group is about fifty per cent higher than for other students. They have been members longer and only one student has left the program as a result of his discontinuing farming.

4. *The student should be associated with or tied to an action program that gives regular long-time educational services to individuals and groups.* Total teaching should include an action program. Students learn much from other students either directly or indirectly. The learning may take place in class, in small groups or between individuals. This is very desirable but it does not provide for group participation and action in solving vital problems that are of a confidential nature. To secure group action by using member's confidential data, it is necessary to organize our management educational program so that each member receives the maximum amount of data from his fellow students, but in such a way as not to reveal individual information. This means the person who examines the farm records, makes the analysis and knows all the details about each individual member's business must exercise extreme care in his speech and writing. This close relationship between the student and the advisor creates numerous opportunities in every field of farm business and living for the rendering of educational services. This is truly an action program dealing with the dynamic daily problems of the individual and the group.

It takes time for some students to accept such an action program but most of those now in the work generally agree that their major problem is to secure greater net profits so they may expand, become efficient, reduce heavy debt loads and give maximum security to their young families. We are becoming fascinated by cooperative farm management and business educational services for it is here that farm businesses will stand or fall. We find from our experience that every member was more or less astounded to find after a year or more of operation in our cooperative action program that his major problem in farming was entirely different from what he thought it was. In some instances it was output, in other cases soils, expenses, production, capital, diversity, feeding, machinery or labor.

5. *The program should be set up and operated as a cooperative on a democratic basis.* It is important the program be student-operated, as far as possible, with the advisor as leader or manager. Every one of our groups has its own officers, directors, or executive committee. Matters of operation, courses of study and other business are handled democratically. While all matters related to education must be handled within the framework of the educational systems involved, a maximum amount of self-government can be utilized. The educational system appoints the instructor but the student organization practices democracy and cooperation by electing him as their farm advisor and secretary-treasurer. Those in the management group also elect the instructor as the farm management supervisor, farm analyst and manager of the cooperative. There appears to be no reason why a student could not be the secretary-treasurer or manager. No constitution, by-laws, rules or regulations have been adopted as yet, although a committee has been appointed to make a study and recommendations.

6. *Individual and group objectives should be set up with the assistance of the farm advisor.* These should be practical or obtainable goals. Group and individual planning is a vital part of total teaching. Systematic instruction and cooperative education are tied in with planning. Individual plans and goals are based on past records along with resource potentials for the coming period. For example, one student feels on the basis of his record, study and plans, that he should aim for one-third more labor income in 1955 compared to 1954. His detailed plan shows an expected increase in various efficiency measures which will increase his output with a minimum increase of expenses. Past records indicate this student will reach his 1955 goal. Most students hesitate to set up specific goals on paper, but not in their minds.

7. *A dynamic cooperative action organization organized to meet vital needs should measure and evaluate its progress at least each year and record its findings in the form of a progress report.* There are a number of ways of measuring progress. The attendance record for a period of years is a simple measure of group progress. Probably the best measure of individual progress is to compare one year with another. For example, a comparison of 1952 and 1954 shows dairy costs have dropped about five per cent compared to a fifteen to twenty per cent reduction in prices received. We note from two individual farm records that profits were held about constant. An examination of the data of one of these shows that receipts per man increased 70.5%, output of milk 32.2%, production per cow 26.8%, and pounds of milk produced per hour of labor 84.3%. The student's net worth increased considerably over the period as did the owner's equity in his real estate. Others made similar progress. Another student led our group by producing 142 pounds of 3.5% milk per hour of work on cows and at the same time reduced the labor requirement per cow to 68 hours per year. In all fairness it should be said that some students cannot or do not make use of analysis work to a great extent because of various reasons. We feel these students should not be encouraged to enter this work. We find the most effective education is based on having the student complete adequately each of the following steps in connection with his own farm business: (1) maintain an accurate up-to-date set of farm records, (2) have an adequate farm analysis made, (3) plan the farm business on the basis of the analysis, (4) put the new farm plan into use, (5) measure results, and (6) attend classes regularly.

8. *If possible the advanced classes should be set up on a type of farming basis with emphasis on farm balance.* Because dairying is our major type of farming, all our advanced work centers around it. Our experience with a mixed group was not too satisfactory although we continue to have a few farmers from livestock and general farms attend classes regularly. Of course, our management group are all dairymen. The young farmers groups come from various types of farms but this is not serious since their core interest is in getting established; furthermore, those interested in the other groups have joined them.

Most all of our farms are weak in some phase of farm balance. For example, we have a student who is very

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An advisory council gets results

Including aid in the farm mechanics program

SAM LOVELL, Vo-Ag Instructor, Belle Glade, Florida

MY right arm in teaching vocational agriculture is an advisory council! I have had the pleasure of organizing and working with two advisory councils in two different school communities, and nothing could take the place of what they did to help me build a program and to accomplish objectives in the program.

My first experience with such a group was in Vero Beach, Florida. At first our classes were held in an abandoned building at an adjacent airfield. The equipment with which we had to work was fair, but the department had no land laboratory plot. This was badly needed because many students had very limited facilities for carrying on a supervised farming program at home.

Within two years, the council had secured a twenty-acre tract of land near the school, bulldozed the land, and put down a 700-foot well for irrigation. At our Parent-Son Banquet in the spring, they presented the Chapter with a new model truck. All the members of the council were very helpful in formulating the teaching program, offered active encouragement to the FFA, and constituted the best public relations program a teacher could wish.

My second experience with an advisory council was in Belle Glade, Florida. It is a town of 11,000 population in the heart of the Nation's largest winter vegetable producing area. Agriculture is the economic backbone of the community. One of the first things I did when transferred here was to obtain permission from the principal and the Board of Public Instruction to establish an advisory council. A member of the School Board, the principal, and myself organized a council composed of nine members who were appointed by the School Board. A member's term of service is three years. By staggering the terms of our charter members, we have three new members each year. Meetings were held once a month and other meetings were called when necessary.

Hold your Advisory Council meetings in a working environment.

The Belle Glade Advisory Council promptly went to work. Listed below are some of the major accomplishments.

1. Helped organize the teaching program.
2. Made a land-use plan for sixty-acre school farm.
3. Obtained outside help for ditching and leveling the school farm.
4. Made recommendations to the school board.
5. Wrote letters on behalf of Agriculture Leadership Award.
6. Set up Chapter awards and served as judges for same.
7. Made suggestions in the purchase of farm equipment.

They have given aid in solving many other small problems. In two years through the advisory council, the community has contributed improvements to the department totaling over $8,420 in actual value.

Emphasis has been placed upon the physical factors necessary for doing the best job, but it is a wonderful feeling to know that our program and decisions are formulated not entirely by the administration and myself, but with the help of the community.

The advisory council is certainly not a cure-all for all the problems confronting the vocational agriculture teacher but, in my opinion, it is the greatest aid a teacher can have in carrying out his program. □

A Total Program - - -

(Continued from page 162)

efficient in production but weak in labor utilization. Another student has high production, excessive cost, and is attempting to correct his weaknesses by diversification. By our systematic cooperative analysis through our action program we have made considerable progress in teaching the value of having a farm balance that allows for the interaction of all factors of production to give extra profits in excess of the combined additional cost.

9. *Provisions should be made each year for improving and expanding the program.* Any new or old program, for that matter, should be improved and possibly expanded. Because we are in a cooperative business venture, with fixed operating cost and limited income, it is necessary to operate in the black. Our members pay fees for non-educational costs, but a small organization that lacks volume must meet the problem of inefficient operations. For that reason our management group has decided to expand membership to the point where we can afford a full-time technician or office accountant. Consideration is also being given to including in our cooperative, members of other young adult farmer classes, thereby having a regional cooperative.

An improved organization is conducive to growth. In 1954 we included a feed analysis in our work for the first time. At the present time we are improving our farm records for a cropping or rotation analysis. It is in order at all times to seek means of improving farm records for marginal analysis. In this connection we are attempting to improve our records so the proper ratio of grain to milk consistent with diminishing returns under various milk-price to feed-cost ratios can be determined and used. Our farm records are especially designed for the purposes for which they are used. We have been asked by non-users if they were not too complicated. Our answer has been "a simple record gives a simple answer—farming in our area is not a simple business." Our members' volumeof business ranges from $19,000 to $72,000 of farm receipts, 29 to 75 cows per farm and 140 to 337 tons of 3.5% milk sold per farm per year.

In conclusion, you will note our program is based on training for efficient farming. We feel that as farmers become less and less of our relative and absolute population and farms become larger and larger, vocational agriculture will certainly adjust to a very intensive training program such as we have outlined. □

Corn grows tall in Mississippi. J. C. Holland, Vo-Ag teacher at Crystal Springs, Mississippi, is proud of the Carraway brothers and their corn. These in-school members obtained a yield of 105.15 bushels of corn per acre.

FFA exchanges good-will

Four FFA Past State Presidents spent Three Months in the United Kingdom Studying English Farming and Creating Good-Will

FRANK WILSON, Ag. Ed. Student at Pennsylvania State University

Max Berry, Oklahoma; Larry Royer, Illinois; Joe Faure, California; and Frank Wilson, Pennsylvania, aboard the Queen Mary bound for the United Kingdom.

GOOD-WILL Ambassadors of the Future Farmers of America visited the United Kingdom under the National Student Exchange program last summer for the sixth year. Larry Royer, Illinois; Joe Faure, California; Max Berry, Oklahoma, and I were more than fortunate to be chosen for this opportunity. Four members of the Young Farmers' clubs of the United Kingdom came to the home states of these boys to tell the future farmers about their organization and British farming.

We left New York, June 8, on the Queen Mary. Five days later our boat docked at Southampton, England, then we traveled to London to the headquarters of the Young Farmers' Clubs where they had arranged for our various visits. Joe and Larry were to travel in northern England and southern Scotland, while Max and I were to travel in Wales and Central England. After a day's tour in London, Max and I traveled by bus to Wales. Geriant Jones, who was an exchange student to the United States last year was to be our host. His farm was located high in the Welsh mountains at Llanfyllin. It was on his farm we sheared sheep by hand (not because of the lack of electricity but due to the danger of the sheep contacting pneumonia if they are shorn too closely in this high altitude and rainy climate.) Grass silage was ready for harvest. Max and I felt the blisters grow as we helped store 100 tons in a pit silo. These silos are used universally. Odd jobs such as trimming hedges, tiling ditches for field drainage, cutting ferns for stable bedding with a sickle among the seedlings of the reforested areas, were a few of the many farm practices we performed.

Max and Frank couldn't help but be happy with their Welsh hosts Mr. and Mrs. Lem Jones, Hafodunos Farm, Llanfyllin, Wales.

During our three weeks in Wales we visited the largest Dutch Friesian herd of 900 head, also the plant breeding station at Aberwryswreath, of world fame, and the University of Wales. At the Young Farmers' Club meetings and the county rallies we were called upon to give speeches and show slides. Occasionally we presented the cups or plaques for contests. These might be stock judging, poultry plucking and trussing, original poems, songs, paintings, harp playing, club choirs or the most improved Club of the year might be recognized. We learned enough Welsh language so that we could talk to those people who could not understand or speak English. Then we could also repeat with them their Club motto, "Good Farmers, Good Countrymen, Good Citizens." Our host surprised us with a Nosen Lowen (which means a merry farewell party).

The train strike being ended, we reached Nottingham, England—the home of Robin Hood—to attend the Royal Agricultural Show. We spent a week observing the show which covered 165 acres and had been prepared during the entire year. Unlike our American shows, there were no distracting side shows, bands or midways. They observe England's motto, "Keep England Green."

This show was attended by agricultural enthusiasts and contestants from all corners of the world. We were among the 42 exchange students who welcomed the Russian delegation, the New Zealand delegation and others. We were thrilled to meet the Royal Family. Our FFA jackets aided us in being recognized and they were greatly admired.

When the Royal Show closed we moved out into the country to other Y.F.A. members' homes where we picked early potatoes, strawberries and worked in the hop yards. Harvest time was on!

We shocked oats by hand and threshed

(Continued on page 166)

Horses are still being used in the hill districts, yet England can still claim more mechanization per acre than the United States.

Hedge trimming is an intregal part of farming in the U. K. Note the difference in dress between the laborer and the land owner.

Are high school farm boys afraid of responsibility?[1]

The answer applies to farm mechanics as well as to other farm problems

PAUL E. HEMP, Teacher Education, University of Vermont

Paul E. Hemp

ADULTS who advocate a return to life as it was in the good old days often point with pride at the many responsibilities which the older generation assumed when they were boys. In a recent conversation with farmers in a selected Illinois community one man said to me: "Today most farm boys go to high school. In my day farm boys were at home after graduating from grade school and were thrown into man-sized jobs at an earlier age." Another farmer agreed and added: "Most farmers don't give their boys enough responsibility. They're afraid to let them run corn pickers and other machinery." These comments were made during interviews I conducted with sixty-four farmers of different ages in an effort to determine the ages at which they first assumed 117 responsibilities.

Some farmers insisted that farm youth of today assume more responsibilities than the youth of their day assumed. One farmer remarked: "Young people of today know more and see more. They have more interests than we had when I was a kid." The same man, in discussing the age at which boys of today decide to become farmers, said: "No one ever stimulated my interest in farming, but today most farm boys and even some town boys have acquired a strong interest in farming." He added: "This interest comes largely from high school vocational agriculture courses." Another farmer agreed that farm boys of today assume more responsibilities than the farm boys of twenty years ago. He said: "Farm boys used to overhaul machinery at an early age and also work in the fields, but the implements were so simple that anyone could repair them. Boys of today are more mechanically inclined."

Let's Turn to the Facts

Even though these comments of farmers are interesting and important they are not too significant unless substantiated by facts. Some other data obtained from these 64 farmers can be used to answer better the question, "Do farm boys of today assume more responsibilities than farm youth of the past?" The following four groups of farmers or prospective farmers were interviewed in this study:

1. Nineteen high school junior and senior students.
2. Thirteen young farmers from 20 to 30 years of age.
3. Eighteen adult farmers from 33 to 47 years of age.
4. Fourteen older farmers from 51 to 68 years of age.

Each person wrote down the age at which he first assumed each of the 117 responsibilities included in a questionnaire. The responses of the four groups were compared. Table I shows some of the findings.

In Table I the 20 responsibilities which a majority of the high school group had assumed are given. Ten of these 20 responsibilities were assumed by a majority of the young farmers before their eighteenth birthday. Only 3 of the 20 responsibilities had been assumed by a majority of the adult farmer group and older farmer group prior to their eighteenth birthdays. Table I shows that young farmers, adult farmers, and older farmers interviewed assumed, before age 18, only 3 to 10 of the 20 responsibilities which the high school boys had assumed.

High school boys undertake new responsibilities in farm carpentry.

[1] Based on a doctoral study entitled, "Developmental Tasks of Prospective and Present Farmers in a Selected Illinois Community." University of Illinois, 1955.

Table I. Responsibilities Assumed Before the Eighteenth Birthday by the High School Group and a Checklist Showing Which of These Had Been Assumed Before Age Eighteen by Three Older Groups.

Responsibilities Assumed by a Majority of the High School Group	*Young Farmers*	*Adult Farmers*	*Older Farmers*
1. Take a job off the home farm		X	X
2. Go to a doctor or dentist by himself	X	X	X
3. Become responsible for selecting and paying for his own clothes	X		
4. Play on a community athletic team			
5. Exhibit at a fair or show	X		
6. Seed a grass waterway			
7. Take out a hunting or fishing license	X		
8. Decide to become a farmer	X		
9. Plant corn on his own			
10. Sow small grains on his own			
11. Cultivate crops on his own	X	X	X
12. Operate a combine on his own	X		
13. Prepare a seedbed on his own	X		
14. Invest in livestock to raise for profit	X		
15. Buy and pay for feed for his own livestock			
16. Sell livestock which he had raised	X		
17. Take definite steps to reduce chance of accidents with corn picker			
18. Take definite steps to reduce chance of accidents with a tractor			
19. Do custom work for pay			
20. Trade help with neighbors			
Total 20	10	3	3

Frequency of Responsibility Assumed

What responsibilities do high school boys assume and to what extent have these responsibilities been assumed by the group interviewed? Table II has been prepared to show some of the responsibilities which the nineteen high school boys had assumed and the number of boys who had assumed each responsibility.

Factors Affecting Assuming Responsibility

Obviously, the amount of responsibility assumed by high school boys varies among boys within a particular school. Several factors seem to govern the amount of responsibility assumed by farm boys. Some of these are:

1. *Farming program of the boy.* Parents and teachers should understand the importance of broad farming programs to the development of boys. Boys learn responsibility by assuming responsibility. We cannot

(Continued on page 166)

expect them to learn responsibility unless they own a share of the farm business and are given full responsibility for its management.

2. *Variable experience on the farm.* Many boys are given only the simple chores as their responsibility. Boys need experience in making management decisions as well as experience in manipulative skills. High school boys interviewed in this study report they had assumed many manipulative jobs but fewer managerial responsibilities.
3. *Position of the boy in the family constellation.* Within families variable amounts of responsibility are assumed by boys. The oldest boy in the family is likely to be given many responsibilities on the farm while younger boys are apt to be denied many opportunities for shouldering new responsibilities.
4. *Size and nature of the home farm.* More opportunities for assuming responsibility exist on large farms which include numerous enterprises. However, some large operations, beyond the family-sized units, may become so commercialized as to offer few opportunities for farm boys to engage in the operation of the business.
5. *Miscellaneous factors.* Many other factors such as the attitude of the teacher and parents, the interests of the boy, and the amount of encouragement the boy receives all enter into the picture in some situations to work for or against the total development of the boy.

Practically speaking, there is little excuse for denying boys the chance to assume new and more complex responsibilities. Youth of today can work with machines and equipment which were unknown when their fathers were young. Farm boys, if they are to grow up and become responsible adults, must learn to take on responsibility while they are young. As boys grow and develop, the amount and kind of responsibility which they are given must be adapted to their capacities and graded for their individual levels of development. Vocational agriculture instruction, if it is based on the farming programs of students, should enable boys to assume many responsibilities which they would not otherwise meet until later life. □

Table 2. Responsibilities Assumed By High School Farm Boys and the Number of Boys Who Had Assumed Each Responsibility.

	Responsibility
1.	Go to a doctor or dentist by himself (18).*
2.	Cultivate crops on his own (18).
3.	Invest in livestock to raise for profit (17).
4.	Become responsible for selecting and paying for his own clothes (17).
5.	Take out a hunting or fishing license (16).
6.	Operate a combine on his own (16).
7.	Sell livestock which he had raised (16).
8.	Buy and pay for feed for his own livestock (15).
9.	Decide to become a farmer (14).
10.	Prepare a seedbed on his own (14).
11.	Take a job off the home farm (13).
12.	Exhibit at a fair or show (13).
13.	Sow small grains on his own (13).
14.	Take definite steps to reduce chance of accidents with tractors (12).
15.	Do custom work for pay (12).
16.	Trade help with neighbors (11).
17.	Plant corn on his own (11).
18.	Play on a community athletic team (10).
19.	Seed a grass waterway (10).
20.	Take definite steps to reduce chance of accidents with corn pickers (10).
21.	Make a financial pledge to a church on his own (9).
22.	Apply animal manures to a crop of his own (9).
23.	Operate a corn picker on his own (9).
24.	Buy foundation animals on his own (9).
25.	Subscribe to a newspaper or magazine for his own use (9).
26.	Own an automobile of his own (8).
27.	Go outside the state without his parents (8).
28.	Plant soybeans on his own (8).
29.	Overhaul a major piece of farm machinery by himself (8).
30.	Operate a milking machine (8).
31.	Take out a card in a public non-school library (8).
32.	Get periodic health examinations or dental checkups as preventive measures other than those required by school (8).
33.	Join in assisting a distressed neighbor plant or harvest a crop (8).
34.	Become responsible for his own school expenses (7).
35.	Make silage (7).
36.	Take a truckload of farm produce to market on his own (7).
37.	Make a major change in handling animals so as to reduce chance of accidents (7).
38.	Invest in stocks or bonds (6).
39.	Make a talk before a community group (6).
40.	Apply commercial fertilizers to a crop of his own (6).
41.	Buy something at a farm sale (6).
42.	Open a bank account of his own (5).
43.	Take the responsibility for having the soil on his farm tested (5).
44.	Advertise animals or crops for sale in a newspaper or magazine (5).
45.	Take out health or accident insurance and pay for it from his own pocket (5).

* Number of boys out of the group of nineteen who had assumed this responsibility.

FFA Exchanges - - -

(Continued from page 164)

them. We climbed on 14 foot Massey Harris combines where we watched phenomenal yields of oats, barley and wheat pour into the drying bins. One hundred thirty bushels of oats and eighty bushels of wheat were common yields this year on the fertile lands. On Thursdays we attended the Open Air Auctions where thousands of sheep, pigs and beef animals were sold. Farm prices were equivalent to those we received at the outbreak of the Korean conflict.

We felt the presence of the ancient nobles when we visited the castles, cathedrals and ruins of the Norman and Roman invasions. Each Sunday was spent in a different church among new friends where the attendance was always very small. Ten per cent of the people are accustomed to attending services.

Being a representative of the United States was indeed thrilling when Frank met Princess Royal Mary, aunt of Queen Elizabeth.

The summer passed too swiftly, for though we spent three months with these extremely hospitable, warm-hearted people, we were reluctant to say good-bye. However, we left with the hope that our associations and exchange of programs will be everlasting links of friendship and better understanding between these two great nations.

Note: The author wishes to give credit to the whole organization of FFA for making possible "this dream of all Future Farmers" an actual experience for him.

□

Pictures can tell a story of interest to the readers of the Magazine when accompanied by an explanatory legend. The back page is devoted to this opportunity. Pictures must be clear and on a glossy print. If requested, prints will be returned.

BOOK REVIEWS

OUR SOILS AND THEIR MANAGEMENT by Roy L. Donahue, illustrated, 446 pp., published by The Interstate, Danville, Illinois. List price, $3.75.

Our Soils and Their Management was written primarily for use in vocational agriculture programs. The book is divided into two parts. The first part contains chapters on our soils, judging land, managing water, controlling soil erosion, soil and tissue testing, understanding fertilizers, using fertilizers, using lime, and organic matter. The second part of the book consists of a series of chapters on how to manage pasture soils, range soils, garden soils, lawn soils, orchard soils, and forest soils. The final chapter is on special soil management problems.

Although this publication would need to be supplemented with other references for some purposes, it should be a welcome addition to the Vo-Ag library. The author has managed to write a book on soils which should appeal to high school boys and young and adult farmers. The language is such that it can be read with a minimum of difficulty. The style is simple and direct. Although technical information is used extensively, it is included in such a way as to be easily read and understood. There are well over 200 excellent illustrations. Additional readings are cited in footnotes.

Roy L. Donahue is Chairman, Department of Agronomy, University of New Hampshire, Durham. He has worked in Michigan, Illinois, New York, New Hampshire, Mississippi, Kansas, and Texas. He is a forester as well as an agronomist. Mr. Donahue is also a former vocational agriculture student.

—A.H.K.

PRACTICAL HORTICULTURE by Shoemaker and Teskey, 374 pp., illustrated, published by John Wiley & Sons, Inc., New York. Price $4.20.

Practical Horticulture, the latest addition to the Wiley Farm Series, was written primarily for students in vocational agriculture. It contains 28 chapters including chapters on Landscape Gardening and Design; How to Make and Maintain a Lawn; and Ornamental Trees, Shrubs, and Vines. There are also six chapters on various kinds of flowers including the rose, gladiolus, dahlia, lily, iris, and peony. One chapter is devoted to growing transplants. The remaining seventeen chapters are devoted to vegetable crops and both large and small fruit crops.

The book is well written and well illustrated. Its appeal should be to the person wanting a good general horticultural reference rather than to the commercial grower. For vocational agriculture, the main value of the book will be in teaching about gardening and home beautification. A list of references for further study is included at the end of each chapter.

Both of the authors are at the Ontario Agricultural College where Dr. Shoemaker is professor of horticulture and head of the department, and Mr. Teskey is lecturer in horticulture.

—A.H.K.

GRAIN CROPS, 2nd Edition, by Harold K. Wilson, 396 pp., illustrated, published by McGraw-Hill Book Company, Inc., New York. Price $6.50.

Grain Crops is an outgrowth of the author's experience in teaching college courses in grain crops. The book is planned primarily as a college text. Chapters included are as follows: Grain Crops and Environment, Plant Classification, Distribution of Grain Crops, Crop Rotation, Soils for Grain Crops, The Culture of Grain Crops, Weeds, Diseases of Grain Crops, Insect Pests of Grain Crops, Wheat and Rye, Oats, Barley, Flax, Rice, Buckwheat, The Millets, Soybeans, Corn Growing, Corn Harvesting and Storage, Sweet Corn, Popcorn, Grain Sorghum, Marketing of Grain Crops, and Improvement of Grain Crops.

As can be seen by examining the chapter titles, this publication deals with all of the principal grain crops. The chapters on the grains include a discussion of where the grain is grown, classification, varieties, uses, culture, tillage, and harvesting. Of necessity, the treatment is brief and quite general. Lists of review questions and additional references are provided at the end of each chapter.

The author, Harold K. Wilson, is Professor of Agronomy at The Pennsylvania State University.—A.H.K.

LAND JUDGING by Edd Roberts, 120 pp., illustrated, published by the University of Oklahoma Press, Norman, Oklahoma. Price $2.50.

The author has done a very creditable piece of work in his description of land judging and land judging contests. Chapters included are: The Importance of Soil, How to Judge Land by Physical Characteristics, Judging Land by Soil Tests and Classifications, The Land-judging Score Card, Conducting Land-judging Contests, and Implementing the Contest.

The book is well written and contains several fine photographic illustrations. The author has been thorough in his treatment of the subject of land-judging. Teachers who are interested in land-judging contests will find this of value.

Edd Robert, author, is extension soil conservationist at the Oklahoma A. and M. College, Stillwater. He was instrumental in the development of land-judging contests.—A.H.K.

THAT INSPIRING PAST by Agnes H. Mueller, pp. 195, illustrated, published by the Webb Publishing Company. Available from the Minnesota FFA Association, Shubert Building, 488 Wabasha Street, St. Paul 2, Minn. Price: paper cover, $1.25; hard cover, $2.00.

This book is the story of the first 25 years of existence of the Minnesota Association of the FFA. In addition to various chapters outlining the organization and growth of the FFA in Minnesota, chapters are devoted to Musical Activities of the FFA, Telling the Story of FFA, The FFA Public Speaking Contest, The Agriculture Teacher, The State FFA Camp, American Farmers, State Farmers—What Becomes of Them, and Cooperative and Community Activities.

This publication is naturally of greatest interest to those persons who have been associated in some way with the Minnesota FFA. Most of the special chapters listed above, however, carry an inspiring message for all FFA members. More than 50,000 Minnesota farm boys helped make the history of the Minnesota FFA. This story of struggle and achievement will serve as an inspiration to FFA members of the present and future.

—A.H.K.

TIPS THAT WORK

A farm mechanics exhibit for our Chapter was started this year at our local county fair which is attended by about 6,000 people.

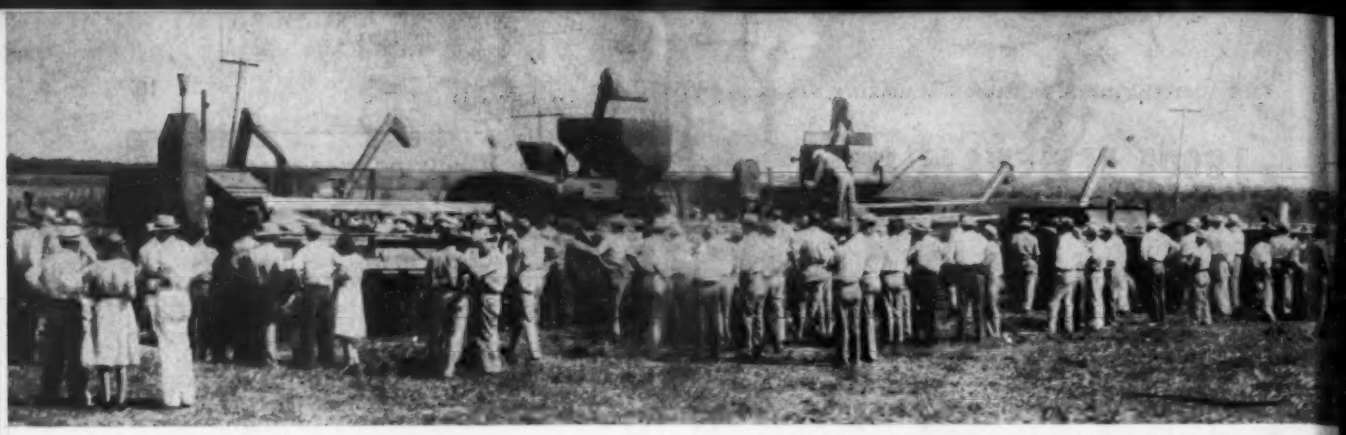
It gave the boys of our Chapter more publicity on their work in shop than anything we had tried. Values received from the exhibit other than the publicity of the farm mechanics program was that it gave farmers attending a lot of new ideas on buildings or tools they could construct at home, was profitable to the boys exhibiting, created more interest in farm mechanics work, and developed a desire to do better work and plan original and labor saving ideas. An extra benefit for the vocational agriculture department was that it was responsible for a request from adult farmers for two farm mechanics classes in electric welding. Several of the farmers own or are planning to buy welders for their farm shops and are building projects based on ideas obtained at the fair.

Premiums at the county fair were paid by the local fair board and were awarded on the Danish system of judging. This first year $60.00 was paid out to exhibitors and since there was so much interest on the part of the FFA members as well as visitors to the fair, the premium money will be increased next year. We also used the local contest as a basis for selecting the projects to be entered in the State Fair contest.

We think the farm mechanics exhibit on the local level will give enough publicity to the farm mechanics program and increase the interest to justify making it one of our major activities for the year.

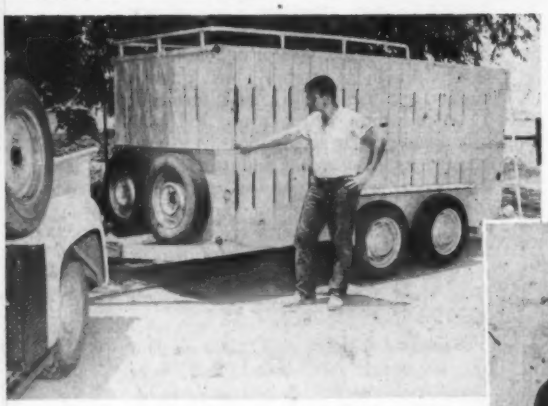
R. H. DENKER, *Instructor*
Vocational Agriculture
California, Missouri

What the automatic drive is to the auto, unified dues are to our professional organizations.



Study day at the Rice Branch Experiment Station, Stuttgart, Arkansas. A means of h
farm people see what is new in farm equipment.

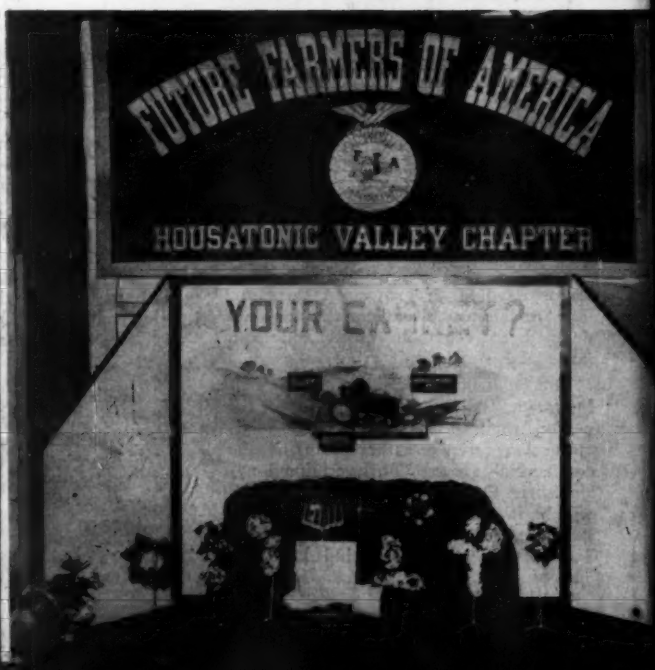
Stories In Pictures



Greg McCleery, Coolidge, is shown with the livestock trailer which he built. Greg won first place in the State FFA Farm Mechanics Contest, and first place in the Phoenix Welding Supply Contest.

A Senior student in Agricultural Education in Colorado observes his supervising teacher demonstrate and explain a soldering skill to a pupil in agricultural mechanics. It is quite obvious from the expressions on the faces of all three individuals that they are vitally interested in the job.
(Photo furnished by Wm. Paul Gray)

Members and Adviser, Wallace Barr, of the W
konata, Ohio, FFA Chapter at the Michigan S
University's Centennial of Farm Mechanization.
Chapter won second place in the National F
Farmers' award which was given during the Cente
celebration.

A member of the Young Farmer group of the Morgantown, W. Va., Vo-Ag department shows two FFA members how he lost three fingers and thumb from left hand while operating the corn husker. Safety really pays!

This educational exhibit attracted the attention of thousands of persons this year at the Eastern States Exposition. It was placed by the Housatonic Valley FFA Chapter of Connecticut. The tractor is animated to over-turn at regular intervals.